COMPUTERWORLD

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UNIVERSITY MICROFILMS INT SERIAL PUBLICATIONS MI 48186

User-built CASE tool slashes code burden

BY JAMES CONNOLLY

running its core business.

Moynihan

backs off

from 1706

BY MITCH BETTS

WASHINGTON, D.C. — Sen.

Daniel P. Moynihan (D-N.Y.) in-troduced a bill last week aimed at

diffusing the controversy sur-rounding Section 1706 of the 1986 tax law, which affected the

tax treatment of computer consultants using brokers.

Moynihan's proposal would replace Section 1706 with a new

two-part test for determin

whether a computer consultant is an independent contractor or

Section 1706 requires con-sultants working for brokers to become employees unless they meet the stringent common-law standards for independent con-

oyee of the broker. The an employee of the broker. The distinction is important because independent consultants get a variety of tax breaks, while em-ployees are subject to tax with-holding rules.

trading package and the CASE NEW YORK - After keep the lid on a \$60 million project for three years, First Boston for three years, First Boston Corp. Isst week revealed an in-ternally built computer-sided software engineering tool that the firm used to construct a glob-al trading and clearance system

body & Co.

The key to the project was in-tegrating three computing tiers that run a single application, with the user never knowing what system — an IBM-compatible personal computer, a Stratus Computer, inc. transaction pro-cessor or an IBM mainframe — First Boston expects to re-cover some of its development

cessor or as 1854 maintrame is handing the processing.

The CASE tool is based on a high-level rules-based language using six statements. It was designed to let business people design a program through a set of menus and to automatically generate Cobol, C and PL/I code.

Meking it easy
"We have people programmi
who have never programmed
their lives, and with two wer

their lives, and with two weeks of training, they are program-ming in this language," and Eu-gene F. Bedell, manager of First Boston's Information Services Department. He added that the tool helped First Boston reduce its programmer-to-systems ans-lyst ratio from 2.7-to-1 to 0.7-to-1. First Boston avoided fourth-Continued on page 113

Silverlake's untold tale

High-profile IBM project almost didn't happen

BY STANLEY GIBSON and JEAN S. BOZMAN

ROCHESTER, Mine. — If IBM's original plans had not been overturned by a bold stroke, one of the glitziest and most anticipated rollouts in the firm's history would probably have come off as a low-key set of

have come oft as a low-key set of system upgrades. Instead, a 1986 decision by IBM Vice-President Stephen Schwartz led to last month's am-nouncement of the Application System/400, which merged the

stem/36 and 38. In exclusive interviews last week at the AS/400 develop-

cation, IBM used its EVE, or Engineering



Putting 65,000 processors to work

BY GLENN RIPKIN



IN THIS **ISSUE**

Apollo down but not out. Ravaged by plummeting stocks, an abdicating president and a lawsuit, the firm still manages to debut aggressively priced 4- and 7-MIPS workstations. Page 4.

3+Opens its lid. 3Com discusses details of its upcoming OS/2

networking system; which will replace the current 3+ late next year. Page 10.

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computers are running on a solid platform. 7 HP bites Apple, charges that Apple copyrights were fraudulently obtained.

7 AT&T rounds up its Unix licensees in hopes of keeping them in its corral.

8 IBM plans more AS/400-style early user reviews, di-vulges future developments. 8 Cost controls pull IBM through sluggish sales see in second quarter.

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his work. Page 65.

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53 Networking mergers rub customer service the

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83 Computer Associates revokes offer in wake of MSA stockholder silence.

83 IBM sheds light on the RISC royalty controversy.

83 Intel counts its bless-ings on the occasion of its 20th anniversary. ome market for first red

Quotable

W e asked [the Secret Service] if we could get up on the roofs and they said. 'Sure, but we'll probably shoot you off.' That cooled our

enthusiasm." **IAMES GILES** NETWORK DESIGNER, DEMOCRATIC NATIONAL CONVENTION

See story page 6.

Simmons to shoulder Bankamerica's burdens

BY KATHY CHIN LEONG

SAN FRANCISCO - After rly 10-month nationwide rch, Bankamerica Corp. has ally found a new ex dent to lead its masvice-president to lead its mas-sive MIS and communications

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94 The cost-of-living fac-

tor could burst the relocation bubble.

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3 diet threatens OS/2, MS-DOS compatibility,

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83 Wilder straps in soft-

ware stocks abourd buy-out-powered roller coaster.

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down, standardized soft-

a living, would you tel? By Dan Woods

109 Software vendors might deal training into the

package.

systems operation.

Michael Simmons, 49, replaces Lou Mertes, who quit
suddenly last October. Observers speculated that Mertes was
pressured to resign because of
multimilion-dollar problems
with Masterwet, the computer
system at Bankumerics that
tracks the firm? onemics made

racks the firm's pension plan.
The new executive vice-pres-sent comes to the bank with revious experience as presi-ent of Fidelity Systems Co., a vision of Boston-based Fidelity eventments, where he worked

investments, where he worked for four years, Prior to that, he worked three years as MIS director at Ameri-can Fletcher National Bank & Trust Co. in Indianapolis. He said his new post is easily the big-gest challenge of his career.

Rumors undounting The troubles with B

The troubles with Bankamerica's organization and systems have been widely publicated during the past year. Yet Simmons said he had no reservations about taking the job.

"Two beard the rumors, but I met the management teem but I'me the past with the past of the past of

vs on the job. on that Simmons holds does not daunt him, either: "When you thoose data processing as a ca-teer, pressure naturally follows. Jung technology to make a b-

part of the job no matter where

you go."

Simmons spearheads the 4,300-employee division known as Bank of America Systems Engineering, or BASE. At last count, BASE was running at



HEN YOU choose data as a career, pressure naturally follows."

MICHAEL SIMMONS BANKAMERICA CORP. ast 20 major systems projects

concurrently.
Simmons said he intends to
introduce changes slowly to the
bank and only when needed. He
will begin by visiting the various
DP centers and identifying areas
of weakness and strength in the
BASE strategy.

Working closely with Peter Hill and Bruce Fadem, two BASE executives who temporar-ily took over Mertes's job after his departure, Simmons said he wants to streamline costs while

CW merges software. systems

This issue of Computerworld features some changes in our format that are intended to make the newspaper easier to read and

MIS market.
This week marks the debut of
an expanded technical section,
called Systems & Software (see
page 23), that replaces the Soft-ware & Services and Systems &
Peripherals sections. This section will resolute our destartibu-

increased focus on the integra-tion of the two.

The change reflects the more integrated approach MIS organi-rations are now taking in build-ing information systems. In tar-geting strategic opportunities, MIS must comider combinations work best as a unit. CW has

work best as a unit. OW has treated systems and unitware in exparts excitons for more than 10 years, but he market is now clearly moving its focus towards combination of the two.

This week we also begin a News 20xors column (see page 6), ighilating discountain order world. The column will enable CW to provide more new each week to use readers and provide

for more than 35 years, downhill racing was dominated by Alpine Americans captured their first gold medal. Technology made the difference. For the first time, wind tunnel tests were used to improve the skiers' aerodynamics. Technology enhances performance

THE LIBRARIAN. TECHNOLOGY THAT GIVES PROGRAMMERS AN EDGE.

The LIBRARIAN keeps programmers on top of change. It creates a complete history of every program is your inventory, including every change. And makes it available on-line instantly. The LIBRARIAN also being manage changes as they occur. Its Change Control Facility helps insure that changes are properly completed, tessed, documented and meet auditing requirements. While The LIBRARIAN matches source and load metales to assure synclassis. And in the changes are minimum.

So if was a large change boxes, your technology uses a minimum.

Oracle sought second opinion

Obtained double verification after TPS benchmarks disputed

BY CHARLES BABCOCK

Oracle Corp. sought an addition-al auditor after its first auditor disputed benchmark results of its delayed transaction proce ing system, according to a num-ber of informed sources.

Oracle is slated to a Oracle Version 6 with TPS today aboard a flight of the British Airaboard a tight of the British Air-ways Concorde out of Kennedy Airport in New York. The an-nouncement will include on-line transaction processing bench-mark results that far outstrip its etitors and make Oracle TPS appear to be a viable con-tender with IBM's DB2 on the

Unlike competitors Sybase, Inc., and Relational Technology, Inc., however, Oracle is expected to present benchmarks that are verified by not one but two independent auditors.

cause the firm wanted to conduct multiple tests on mainframes and minicomputers. The main-frames available for benchmarkCoast and the minicomputers were on the West Coast, officials said, so the Belmont, Calif., firm

cided to employ two parties.
"It was just coincidence," aid Mark Rawlins, Oracle's di-Even with two auditors, Ora-

cle has had trouble getting the benchmark reports finished on When asked if there had be

a dispute with one of the audi-tors, Rawlins said, "I have no knowledge of that whatsoever. I am not aware of any dispute over Oracle declined to name the

two auditors, but outside sources said it first hired Tom Sawyer, a relational data base consultant associated with the Codd and Date Consulting Group in San Jose, Calif. Sawyer is in Sain Jone, Catt. Sawyer is known to he a meticulous profes-sional and served as the auditor of Tandem Computers, Inc.'a Nonstop SQL benchmark in March 1987, a test widely ac-cepted as an accurate debit/cred-it benchmark. Sawyer when con-

tacted said he could not communt on the benchmark. Oracle later hired a second

auditor, reportedly Christopher Bird of The Gartner Group in Stamford, Conn. Bird could no

reached for comment. Oracle and Sawyer were recortedly unable to agree on how o do a TP1 benchmark, an ill-de-

Oracle's Ellison

fined offshoot of the debit/cre benchmark. Oracle conducted

several tests and reportedly al-lowed Sawyer to certify those he agreed with. It sought the sec-ond auditor to verify additional tests, informed observers said. Prior to hiring Bird, Oracle contacted a number of relati data base authorities.
"They approached me too. It

was very clear they had certain

numbers they wanted to make stick," a data base consultant in

atick," a data base consuran. m Chicago said.
Omni Serlin, president of Los Altos, Calif., market research firm Itom International Co., said he was contacted by Oracie: two months ago but declined to participate bocause he is nettempting to establish an industry bench-marking council and did not want to become involved in sudting an individual sendor.
Oracle is believed to have ap-researched. The Yankee Group in

Oracie is believed to have approached The Yankoe Group in Boston, which published the report "The Puture of Transaction Processing" last year. A Boston-based relational data hase consultant who saked to remain anonymous said he in turn was asked to sodit the Oracie benchmark by a representative of Theorem 200 per processing the processing of the Proces anked to auast the Oracle oracle-mark by a representative of The-Yankee Group. "I think Oracle was having trouble getting the numbers they wanted," he said. His firm also declined the job.

His firm also declined the job.
As recently as 10 days before
its TPS announcement, Oracle
was still looking for an auditor,
according to Michael K. Andersoon, directors of technical services at Aim Technology, Inc. in
Palo Alto, Calls.

Oracle Chairman Larry ElisControl Chairman Larry ElisChairman Larry

shipped; the Series 4500 models are stated for December availare smell be ability.

Both the 3500 and 4500 are available with either 155M-byte or 345M-byte or 345M-byte disk drives and come with an IBM Personal Computer AT-compatible bus that offers seven expansion slots. The new systems are also

expansion
are new systems are also
available as servers. Both come
with a Motorola floating-point
coprocessor standard — a festure not offered in communication.

COMPLETERWISE IN

May be Chief

Mary Grove

Ferra, Corr

o S. Penna, Corresp

Despite rocky times, low-end Apollos surface

BY NELL MARGOLIS

BOSTON — Still smarting from BOSTON — Soil smarting trom its surprise losing quarter, stock price plunge and subsequent class action lawsuit, Apollo Com-puter, Inc. Giled out the low end of its workstation line last week with two systems based on the Motorola. Inc. 68030 micro-

oceashr. Debuting were the Series 500, which is capable of 4 mil-Joou, which is capace of a mis-lion instructions per second (MIPS) and uses the 25-MHz 68030 chip, and the 7-MIPS Se-ries 4500, the first workstation to incorporate the 33-MHz ver-sion of the 56030 and the newly announced Motorola 68882

sting-point math coprocessor. Analysts called Chelmsford, ass.-based Apollo's pricing on the new workstations "aggres-sive." The company has been criticized in the past for not staying price-competitive against an aght of young com According to Apollo, the Se-

ries 3500, priced at \$7,990. matches the price/performance of the Sun Microsystems, Inc. Sun 386I/150. The \$18,990 Model 4500 betters the Sun-4/110's 7-MIPS capacity for

4/110's 7-MIPS capacity for \$21,000, the company said. However, such comparisons ignore the fact that the Sun 3861/150 "is basically a transi-tional machine that lets current MS-DOS users put their toes into the Unix world with one

More for the desk top on line with 4- and 7-MIPS systems

Series 3500	•	25-MHa 68030	4M to 32M bytes	\$7,990 to \$24,890	Now
Series 4500 (7	33-MHz 68030	SM to 32M bytes	\$18,990 to \$36,490	December
Milion disease	ution pe	sacond			CWCBAR

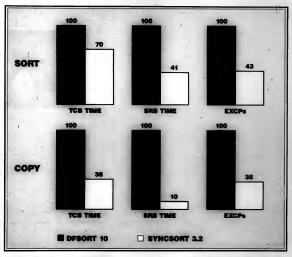
Apollo president resigns A harrowing week at Apollo Computer, Inc. ended with the resignation last Friday of President and Chief Operating Offi-cer Roland D. Pampel.

responses and Fridge of President and Chief Operating Other Persponses and Chief Operating Other Persponses of the Work of Persponses of the Work of Persponses of a 15 million to 16 million general Persponses of the Work of Persponses o

platform, while the 3500 is basi-cally more of the same thing," said Charles Foundyller, presi-dent of Daratech, Inc., a market research firm based in Cam-

research firm based in Cam-bridge, Mass.
Apollo confirmed that it will still offer its Series 4000 work-stations, which couple price/ performance oquivalent to the 3500's with a larger power sup-ply and one more bus slot.
An Apollo spokesman said more than 350 of the Series 3500 work-traine.

SYNCSORT OS vs. DFSORT



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NEWS SHORTS

IBM says PS/2 report was wrong

IBM soys P5/Z report was wrong An IBM spiakement heatofy denied a published report has week that fedier's have been experiencing technical problem with Prevaual System for the Componentatives are meeting with the component of the Componentative are meeting with dealers but suffered and expenses to meeting with dealers but suffered and problems was un-tered to the component of the component of the component with the component of the component prevaual problems was un-tered to the component of the component prevaual problems problems supplying P5/Z replacement parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also somered. However, the component parts to dealers was also some the component parts.

Unitary a confirms probe
Unity Cop. last week confirmed an investigation by the U.S.
Attentory General radio feel Texture, Arts., and said it is cooperating with the probe into alleged overcharge on information
See Handson, Art. Rowever, in response to a published report that slieged overcharges could annote to a much as \$10 million, the company commented: "Any mininterings that may have occurred did not exceed \$255,000." The \$38 million contracts of the confirmed of the contract of the co

Trade bill passes House

Tracide bill passes House
Armedia mid sile appetid by the comparer and oth ware inArmedia mid sile appetid by the comparer and oth ware inArmedia mid sile appetid by the comparer
U.S. Bloom of Representatives approved it by a 371-64 Swo.
Endough joblytic are beposed that the tracher criterion in gladmid provided and the tracher criterion in gladsingular by-marked regard. Reagan vector and earlier version
of the track followers in tuckedes a provision requiring commonths provided follow of states called a provision requiring commonths provided follow of states called a provision requiring commonths provided follow of states called a provision requiring
ment correct, strengthes indicated property rights and
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end account foreign the chromomorphic character.

Anocomp eyes storage products
Anocom, i.e. signated last week that it has left the bunking
software bulenise in behind wheat its amound this intent is no equire think drive and storage media vendor Xder Corp, for \$10
per share, or \$115 million. Xdex, with \$97 revenue of \$452
million, is roughly from times larger than Asscomp, but the indiampolish-under firms and it will finance the deal through its
lample in the safe of the safe of the safe of the safe of the
safe of the safe of

Bell company details ONA plan Nynex Corp. issued specifications last week for a purity details ONA plan

year of the property of the second process of the second to t

PS/2 soles dipped in May

IBM's lane Personal System? announcements asped the
strength of as loss in May, and the containing shortage of the
strength of as loss in May, and the containing shortage of the
According to Storeboard, Inc. in Dalks, IBM's aimcrocomputer
According to Storeboard, Inc. in Dalks, IBM's aimcrocomputer
seal stores in May — down 11.8% from the previous month
and down as whoping 37.8% from May 1987.

DRAMs shipped by Siemens

Semens AG amounced in Munich that it has begun deliveries of its 4M-bit dynamic mandom-access memory (DRAM) chips for customer evaluation. The chip represents a quadrupling of the memory capacity of the 1M-bit DRAM without a doubling of the chip's surface area. Sieneens and it expects the chip to be in full volume production beginning next year.

Easing life on convention floor

Communications net of LANs, TV hookups solves logistical nightmare

BY JAMES DALY

ATLANTA — Roger Schneider may very well be the dyed-in-the wool Democrat he claims, but less than a week before the Democratic National Convention began, the man in charge of its computer operations sounded

like a wild-eyed revolutionary.
"We're talking about funda-mental changes," Schneider said, stabbing a finger into the air. "Right here and now, this of-fice has become the standard bearer for a new age."

But the director of informa-

But the director of informa-tion systems is not suggesting we buildone the White House or march the Supreme Court into the Potomac. During the past seven months, Schneider hand-tooled a \$650,000 communica-tions network, and now be is ready to draw the curtain at this

"Four years ago, our major means of communication was yelling down the hall," said Schaeider, an affable 30-yearyeang down the hall," said Schneider, an affable 30-year-old Alabama native. "Right now we're sitting on top of 245 per-sonal computers and 23 miles of fiber-optic cable."

The system solves what could have been a logistical horror show: cramming more than 40,000 delegates, party members and press people into Atlan-ta's 17,000-seat Omni Auditorium. The solution was to divide the spillover between the adjacent Georgia World Congress Center and several hotels and then weave a communications web of local-area networks and television hookups.

The core of the system uses Novell, Inc. a Netware 2.1 oper-sting system to link nine LANs in three downtown sites and party beadquarters in Washington, D.C., with the convention floor. The Atlanta police can also tap

The possibility of using roof-top microwave links was also licked around but was quickly

One of the me challenging aspects of the job was building the system's va-riety of custom soft-

vare applications.
On his first day,
Schneider was
greeted by a lopsided stack of letters

We'd have VIPs writing in saying 'I need four limes, 115 telephone lines in my hotel room, six phews hired, "he said.

The solution was to write-

The solution was to write customized programs — dones of them. Schneider, who is on substitution from his job as vice-president of a local software development company, and a corps of 10 programmers got to work.

Using Ashton-The Corp.'s
Dissec and Mantucket Corp.'s
Clipper, the team worked faricoast to crush cost more than 100

ously to crank out more than 100 programs. Few stones were left unturned. Convention party planaers can even fine-tune their social calendar by tapping into a facility management system data base. Earlier this year, a ques-tionnaire was sent to local hotels and parties.

or questions ranging from whether they serve knober food to the number of buses they would allow to park out front. A team with an ultrasound gun was also sent out to measure the size of every available meeting room. amond by security-concious A computer used as Secret Service officials. "We seem the recoil get up on the The CAD system also can be provided should be seen that the second of the security of the case of the case of the second of the case of the



um's floor, where it is b um's floor, where it is being used to quickly reconfigure delegate seating. "Our seating plan some-times goes through four revi-sions a day," Schneider said. "It would drive an architect suits."

would drive an architect suts."

On the convention floor, delegates are provided with a Unitabased system that resembles a portable computer attached to a telephone. A touch-sensitive screen allows voting on party planks to be quickly tabulated. But Schneider assured others that high tech will not step on the toes of one tradition: State purty chairmen will not be denied the chance to bellow out their votes for the presidential candidate on

Pulling the party together Networks in use at the Democratic Na heodquarters in Washington, D.C. tion feature links to condidates' staffs and to party



DEPOSITATION PROVIDED BY SUSPESS CONSTURING SENT

AT&T tries to defuse OSF Unix threat

BY JULIE PITTA

SUMMIT, N.J. - In what appears to be a posed by the Open Software Foundation (OSF), AT&T has hosted two meetings of its Unix licensees this month to stave off

potential defections.

"OSF has clearly brought some pressure to bear on AT&T; otherwise, they wouldn't be holding these meetings," said Paul Maritz, general manager of the networking and Kenix unit at Microsoft. Corp. Maritz attended the first of the two meetings held earlier this month at AT&T of United development headquarters.

re.
A second gathering of AT&T's Unix b-naces was held last week in Boulder, No. AT&T, with Data Systems Group resident Robert Kavner in attendance, n tried to reassure its licensees, according to those present. At the meeting, AT&T said it would consider altering cer-tain conditions of Unix licensing, a compa-

tain conditions of Unix licensing, a coing-ry spokensmassi, wice-president of Tom Jermalak, vice-president of Tom Jermalak, vice-president of the president of the president of tested of the president of tested of the public tested of AT&T admitted that publicly surround-ing its co-development effort of Unix Sys-tem V, Released 4 with Sum Microsystems, University of the president of the president

nickerish to sum a purrorpasson marker a parmickerelopment. Jermulak said he is pleased that AT&T Jermulak said he is pleased that AT&T say modify its lecensing conditions as the said to pressure from its licensees. There's been a lot of hasele over certain censing issues, "he said. "If you wanted able Release 3, you were required to see their RFS networking scheme this no

Sun worshipor?
An AT&T spokesman said the relationship between Sun and AT&T remains
strong despite a recent characterization
by a Sun official that relations are rocky. Sun official that relations are rocky, y're an equity partner of ours, and bring s lot to the table in terms of de-puent." he said. The purpose of the meetings held this month was cou-out, he said, declining to offer further

detain. For its part, San is downplaying its role. In an interview with Computer-sortd conducted after the ATAT meeting, marketing vice-president Ed Zander emphasized that ATAT owns the Unix operating system. "We are a contractor of the technology," he said. "If the ficenees feel better after the meeting, then

ees seel better arter the meeting, then that's great."

Zander, who dismissed a statement made by a Sun official in recent weeks that it may join the OSF, said both compa-nies are working furiously to accelerate release schedules and that Sun's relation-ship with AT&T is "great."

HP counters Apple suit

SAN JOSE, Calif. — Hewlett-Packard Co. last week blasted Apple Computer, Inc. with a biting countersuit alleging that Ap-ple's graphical interface copyrights — the subject of Apple's highly publicized and debated lawsuit last March against HP and Microsoft Cory. — were obtained through fraud and deliberate misrepre-sentation.



Silverlake

FROM PAGE 1

ber 1986; it consisted of first-pass hardware and a version of OS/400.

OS/400.

The original AS/400 blueprint did not include the low-end Models 10 and 20 and the entry-level 5363. The decision to add these tower configuration models came in November 1986. They in November 1986. They mented the AS/400 archi-re in CMOS technology rather than the bipolar imple-mentation used in the larger

rack-mounted models. • A 1/1-in. tape cartridge, in ed for the machine at rollout e, was killed earlier this year. A replacement 1/2-in. subsys

The project was code-named Sil ake by System/36 and 38 grammers and planners to programmers and planners to symbolize their home here; Sil-ver Lake is a public park located near the center of Rochester that is popular among local resi-dents and is a haven for numer-Canada geese. The impo ce of the project and its hig



IBM President John Akers and with neveral M*A*S*H ters, gave the Rochest ployees a major morale boost. In fall 1985, Schwartz, then

nt of the System Prod a Division, was faced with a fe" plan to enhance the Sys-"safe" plan to enhance the sys-tem/36 and 38 separately. How-ever, Schwartz and mid-range developers had toyed with the idea of merging the product lines. Several Rochester engi-neers had developed a prototype of a System/36 execution envi-

of a System/36 execution envi-connect running on a Sys-tem/38. The mock-up used an RPG compiler and m Operator Control Language interpreter. In February 1986, Schwartz spare the OK for the merger project to proceed and soon assigned Thomass Purey to take charge of development as Rochester into-rostory directly.

According to Furey, Sback strategy in case al plan failed. Although



na roll on Rochester AS/400 lin

ester,he said

can't have unbounded change

said: "People had to follow rul

m/38 could have been ced readily as a stopgap, the System/36, more difficult to e, might have been left

ng had the project not While the groundwork was being laid for Silverlake, the hester plant was putting the shing touches on enhancements to the System/36 and 38 that more announced in lune

In May and June of that year, Furey reorganized the Roches ter engineering and program-ming departments. By the end of

1986, a prototype was operational. However, at that time, the code name Silverlake became public. Furey, who said he was "ap-palled" at the leak, rethe project

Olympic. In November 1986, Furey said he became inced that Silver lake needed several low-end processors that were not then planned. He moved to B20 and the Syste 5363, calling in Entry Systems Division prod-uct manager Duane Dueker to play the lead

Furey said last week that the 5363 will be sold for approximately two years, until the AS/400 architecture can be fur-

ther reduced in size and price

To get the operating system home on schedule, IBM tried a new kind of software design process, according to Richard A. Sulack, an AS/400 programming product manager. "We had a product manager. "We nad a just-in-time approach," Sulack asid. "Every week, we built a new operating system. Some-times as many as one million lines of code were integrated

It was a building-up process, explained Furey. Without it, oth-er parts of the AS/400 team, scattered throughout 32 IBM sites worldwide, would have had to wait before they began their work. The new approach is being studied by other IBM laborato-

IBM posts 6% growth in quarter

BY CLUTTON WILDER

ARMONK, N.Y. - Tight co controls helped IBM weather a hall in its product cycle to post solid, if unspectacular, growth in the second quarter ended June

IBM's operating income, no including a \$600 million charge Throughout the process, including a \$600 million charge for its recent work force reduc-tion, rose 9% over year-earlier levels in the quarter. Expenses increased less than 6%, not in-cluding the charge. comments and revisions from software engineers and BM customers contributed one-tenth of OS/400's code, Schwartz said. "It was a lot of little things, but it selded in a 700.000 "."

added up to 700,000 lines of The company reported Fri-day that overall revenue was up 6% to \$13.6 billion from \$12.8 But Rochester's disciplined software development, pushed through with many production billion in the second quarter of 1987. Net profits, with the costs of reducing the work force fac-tored in, dropped to \$964 mil-lion, or \$1.63 per share, com-pared with \$1.18 billion, or goals, led to a coordinated effort. grammer creativity was ed off for efficiency. "You

\$1.95 per share, a year ex because that impacts the prod-uct at the system level," Furey Analysts said the results were couraging in what was a buybut we felt we had to manage the

encouraging is what was a buy-ing pause period for mid-range and mainframe customers.

Donald Young of Sanford C.
Bernstein & Co. and IBM's rev-The final hardware result — the AS/400 architecture — will last until the year 2000, accord-ing to Bill Kempke, a high-end enue was adversely affected by its product cycle, with mid-range hardware product manager at users awaiting the recently an-nounced Application Sysing the expected summer introduction of F-model up-grades. "IBM showed signs of ent on very little

One possible warning sign for IBM was a slowdown in the growth of software sales. The rowth star of IBM's business agments for the past two years software revenue increased 15% ware revenue in the first qu ter, in contrast, was up 22% over the first quarter of 1987.

MCI buying back Separately, IBM and MCI Com

munications Corp. announced that MCI will buy back IBM's 16% stake in the carrier. MCI, which had an such intentions earlier this year, will pay \$677 million for the

ock. But IBM will buy \$400 million worth of a new class of MCI preferred stock paying "That's a vote of confidence for MCI," said analyst Charles Nichols of Bear Steams & Co.

Nichols of Bear Stearns & Co. "But I don't see any change in their partnership. IBM has been a passive, not active, investor." No. 2 mainframe maker Un-isys Corp., also reporting sec-oud-quarter results last week, showed continued evidence that it is holding the line on expenses.

The firm's profits jumped 34% over year-earlier levels to \$162.3 million, or 78 cents per share; revenue climbed just 5%

User input now welcome at IBM

arly customer review of the IBM Appli-cation System/400 as it was being devel-oped was so successful that the practice is likely to be continued, according to Stephen Schwartz, vice-president and eral manager of IBM's Application Systems

Division. "I think what you see is a new way of life" for BM, Schwartz said last week during an interview at the Rochester, Minn, plant where the AS/400s were developed. "I think we knew more about user reaction to this product before we annous

by a lot - than any other product in our history. Schwartz said early user review may blunt later criticism of IBM products at users group meetings. He also shed som light on the AS/400's future de oment. Among features us ers can anticipate are these:

to rivat tast of today? a 370 archi-tecture mainframes. "By the early 1990s it will encroach, from a horsepower standpoint, on the power range of the low-end 390%, "Schwartz said. He added, however, "the 3090 will always stay a long way in front of the AS/400."

Encroachment of the AS/400 on large corpo-

mts, the target of the 9370, is app

ently not a major IBM concern. "I believe the money we have invested in ease of use (for the AS/400) will pay off in corporate departments as well," Schwarts said. • Systems Application Architecture (SAA) will

one day case migration from AS(400s to IBM 3090s and successors. That path will become more important as medium-marc transition buy the AS/400 grow into major enter Schwartz said. "As SAA s plemented at the end of this de-cade and the early 1990s, the

lity to migrate from an 4400 to a 3090, if required.

between AS/400s, engineering workstations and IBM 3090 mainframes will eme will enable Unix work was ename Unix workstations to access data stored on the AS/400. "We do not plan to put AIX [IBM's Unix] on the AS/400, but we do plan to pro-changes to AIX workstations," he

AN400, but we do plan to pro-vide good attachment to ADI workstations, 'he said, adding that Ethernet capabilities will he added eventually, but not this year. The IBM 9370, measwribe, will be positioned as a num-ber-crunching Unix and computer-sided design and magnifications. rufacturing processor, he said. JEAN S. BOZMAN and STANLEY GIBSON



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3Com lubes OS/2 chassis

BY PATRICIA KEEFE

SANTA CLARA, Calif. - 3Com Corp. hast week detailed pricing, shipping ado configuration data on its OS/2 network operating system, 3+Open, which will make the company the first networking vendor to ship an OS/2 product.

ventor to stip an Us/2 product.

3Com also confirmed that 3+, the current version of its software, will be phased
out, most likely starting in late 1989.

"A year from now, there will be no reason to purchase 3+ over 3+0pen," mail
Eric Benhamou, general manager of

3Com's Software Products Division.

By then, the full suite of networking several seve 3+Open with the 3+ generation of net-

work products and services, 3Com claimed.

Taking a page from Novell, Inc.'s book, 3Com said it plans to market 3+Open software in two classes — Entry System and Advanced System — with a choice of dedicated or nondedicat-

3+Open includes Microsoft Corp.'s

OS/2 LAN Manager and Microsoft and BM's OS/2 for the file server. Both versions are slated to ship in October. It is customized for 3Cc

Looking to next generation
The Advanced System configuration reportedly will enable users to take advantage of the coming generation of distribused applications being developed under

- ***comments, inportedly was ensure users to been exerus-tage of the coming generation of distrib-uted applications being developed under OS/2 for a variety of environments, in-cluding products from BM, Apple Com-puter, Inc., Digital Equipment Corp., Hewlett-Packard Co., AT&T's Unix and

3+Open Advanced System will sup-port an unlimited number of users per server and multiple servers as well as LAN-to-LAN and LAN-to-host connec-

trivity. It costs 82,995.
A second version of Advanced System is customized for 3Com a dedicated Intel Corp. 80386-based 33400 file server and costs 33,495 per server. It includes server and workstation software; 3+Open Stag. Which is server booking for DOS workstations and 3Com a 3Station; and 3+Net-DOS.

JS.
The Entry System, targeted at stand-one local-area networks with up to five idea, features a low price and ease of in-aliation, 3Com claimed. It costs \$995.
The two systems share a mamber of

features, such as concurrent DOS and OS/2 workstation support. Both also provide network security tools and administration, but in different degrees.

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channel interfaces can connect your IBM or compatible mainframe to Ethernet, X.25, T-1, IEEE-488, high-speed printers non-IBM computers, custom networks,

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hotine. That's the same or her vace unan-made us number one.

For complete information on KMW channel interfaces, protocol converters and graphics processors, call the toll-free number below. Or write KMW Systems, 6034 W. Courtyard Drive, Austin, TX 78730.

Folk leaves Ashton-Tate

BY KATHY CHIN LEONG

TORRANCE, Calif. — After three years with Ashton-Tate Corp., Roy E. Folk, ex-ecutive vice-president and general man-ager of its software products division, has

ager of its onfware products division, has resigned to pursue personal interests.

"I felt good about the things I've done here, and now I'd like to pursue some personal invectment opportunities," Fold soid, "I still want to be involved in technology and the industry, I have the venture capital contacts to start another company, but I have no plans to do sirtly thow."

The resignation, effective Sept. 15, comes at a time when Ashton-Plate I hay development produce. Obsert I/h sub-ordered the residence of September. Pedia carrier and the product such and of September. For the cross-order to tail in morth spr. The comparation of the product small morth spr. The comparation of the product small morth spr. The comparation and press supervisory desire to Bric Kim, data have business unit munager, and William Sow, wice-president of development. Although the product is ridden with Although the product is ridden with National Sept. Prediction of the Predict I allhough the product is ridden with National Sept. Prediction I all the National Sept. Prediction I all the National Sept. Prediction I all the National Sept. Prediction I will be sep

Amicable separation
Observers speculated that Dose IV was wrested away from Folk's hands. However, Nussbaum denied the charge.

Observation speciation than Libbas IV was "In Mandama detailed the Cartin, 20, and the Cartin, 20, and 20, and 20, and 20, and 20, and we needed some people to give a 100% to general the down." Numericant to gain at all the down." Numericant to gain at the down." Numericant to gain and the process, in addition, and the companies of the content to gain to such the process to gain to gain and the companies of the contents of gain to contents to gain to content to gain to companie the gain of the companies of the contents of the companies of the contents of the companies of the contents of the cont





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ATAT 605 ICT reminal (left) shown with ATAT PROCTERM menu. ATAT 690 MTG reminal (right) displays text p

The secret is the AT&T 600 Series Display Terminal family:

If you've ever been forced to live with two CRTs on your desk; just to get the information you need, or have struggled to connect your terminal to a second computer, you'll appreciate the power and simplicity of the ATaT 600 Series Terminals—the first terminals that take full advantage of the UNDG* operating system invented by ATaT.



ATAT 620 MTG terminal (left) supports common business graphics interfaces. ATAT 615 MT (right) is the recommended multitasking UNIX System

ATAT's windowing technology, built into the 600 Series, provides a seamless link to UNIX System V's multisaking capability and gives the terminals unprecedented windowing power. The result is that one 600 Series Terminal can do the work of several ordinary ones, saving you time, money and space, and improving productivity.

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AT&T's terminals allow you to display up to seven windows simultaneously, putting the world truly at your fingertips. can use the powerful multihost, mulitiasking windowing system built into the 600 Series Terminals to preview data from up to seven different sources, both local and remote, at the same time. You can run multiple live applications concurrently.

Each window behaves as if it were a stand-alone terminal with its own host connection, and up to seven windows can be displayed per host. Plus you get full bit-mapped graphics, local processing, and a large, easy-to-read screen.

Total UNIX System compatibility.

Most importantly, the windowing and other advanced features of the 600 Series Terminals work instantly with your system, software; there's also no need to modify existing applications software. And the 600 Series works seamlessly with ATAT's powerful 6386 WorkGroup System and 38 Computer products.



ATAT 630 MTG terminal: Provides dual-host access and down-loadable applications (left); provides high resolution display of engineering or business graphics (right).

In addition, the AT&T 600 Series Terminals offer full PC terminal capability in the UNIX System environment so you can unleash the power of both UNIX System V and MS-DOS* applications for your remote terminal users

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my users in the org

Will APPN features trickle down?

IBM hints that AS/400 version of protocol could be folded into SAA

now in a few isolated locati but we intend to go to full in

BY ELISABETH HORWITT

RYE BROOK, N.Y. - Enhan

APPN will achieve an IBM Systems Application Architec-ture (SAA) status — even while hinting at the likelihood of this

Bringing the networking pro-col into SAA could potentially mefit many network users by aking APPN's unique features valiable on other major IBM and ren non-IBM systems, since now-proprietary protocol uld move into the public do-

One interested user is Contital Insurance Co., which cur-tly uses APPN to connect IBM System/36s at some of its

"When you insert another node on the network, it just tells the two adjacent nodes it's there, and away you go," said John Vande Creek, the Neptune, N.J., insurance farm's vice-president of systems architecture. "I am anticipating those capabil-ties for the AS/400; what would

Spice of life
Originally developed for the Sys-tem/36, APPN provides a vari-ety of networking functions that IBM has yet to supply for VTAM and Systems Network Architect

frames.

In particular, APPN systems automatically maintain tables of the location of active nodes on the network, "so you don't have to take down the whole network every time you change a node, as you have to do with VTAM," mde Creek said.

nounced more sophisticated networking functions for the AS/400 version of APPN. Two important features of-fered on the AS/400 version of

APPN did not appear in the cus-tomer letters of announcement but rather in a technological pub-lication that IBM is just beginng to make generally available.

The first is the ability to auto-

The first is the ability to auto-matically update the tables of APPN nodes each time a user, file or other resource is moved from one AS/400 to another. The ability to automatically keep track of users moving from

have a lot of work to do to man-age those directories." ed number of users or resources to their own logical units, or LUs, according to Chris Jones,

work resources; however, the more LUs network nodes have to keep track of, the more com-plex the directories and the more CPU and network time it

for APPN networks, ac-

154 Fil . .

The Power of **Automated Operations** Strategies, Inc. "In a large net-work, I could see 80% of traffic being related to [updating of] di-rectory information," he said.

Another source of congestion is that APPN nodes must broad-cast queries throughout the net-work every time a user or prorequests a remote rec whose location is un

IBM's Jones pointed out that

the second time the request is made, the system has its location on record, so it can send directly The AS/400 version of APPN

can also minimize traffic conges-tion by efficiently routing trans-

APPN's new ability to pro-vide intelligent routing makes

net, according to Frank Dzu-beck, president of Washington, D.C., consulting firm Communi-cations Network Architects, Inc. Another APPN advantage, be

Another APPN advantage, be added, is the ability of the net-work to heal itself after a crash or glitch without needing manual reconfiguration of tables. The problem is that this new, powerful APPN is still limited to

new capabilities will be made

APPN could p PN could potentially be-an extension of SNA and an ent of SAA, but it currently ngs to neither architecture,

He conceded that APPN's ability to automatically update network topology would be a

nce of trac mal hierarchical networks in hich "everything needs to be fined and you need a staff of ople to do it," be said. However, converting such networks to APPN could prove difficult orga-nizationally as well as technical-ly, because "big, installed, hu-mongous personnel."

IBM claims Netview no CPU hog

BY ELISABETH HORWITT

RESEARCH TRIANGLE PARK. RESEARCH TRIANGLE FARE,
N.C. — Seeking to refute competitors' depictions of Netview
as a computer log. IBM last
week released the results of internal benchmark tests that indicate its network rannagement system uses only a mode amount of CPU time on an IB

In one test cor Netview on a 3090 Model 200 running MVS monitored termi running MVS monstores serminal-to-application sessions running on another 3090 Model 200; both hosts used VTAM Version 3, Release 2.

Benchmark tests measured the number of CPU seconds it

tion and deactivation and lo-m and logoff, with and without etview. In each case, Net-

view's presence resulted in or a slight increase in CPU time. For example, it took a he running Netview Release 2 a proximately 1,600 CPU secon proximately 1,600 CPU seconds to process SOK logical unit, or LU, logon nessions; it took 1,400 CPU seconds without the network management system. The added seconds are associated with the need for Netview to col-

measured Netview's CPU utilization when the system is send-ing and receiving data on LU-to-LU sessions as well as processing logon and logodf ac-tivity. The test found that Net-view Release 2 uses up 20% of a 3090 Model 20 host's CPU re-

1990 Model 20 bent's CPU re-cources when it is handling the activity of 30K LUs.

On a \$570 Model 60 running VM, Netview Reienze 2 used up approximately 6.3% of CPU re-sources when handling 45 users performing the activities de-scribed above. In contrast, Net-view Reienze 1 used up almost same configuration. Release 2 outperformed beliense 1 consis-tently in all other tests per-formed in the study, IBM usid.



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em overhead isn't an issue when you can have less than 1% CPU consumption. Nor is scheduling when you can make changes to the system on the fly, rather than waiting for an overnight 'gen' And Support From the Mother Ship

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Fish Harvest Study





Rough seas predicted as Agenda ships

BY ALAN J. RYAN

CAMBRIDGE, Mass. — Lotus Develop-ment Corp.'s Agenda, which the company d creates a new software category

called "personal information manager."
met with mixed reviews last week.
At a gathering held to announce shipment of the \$395 product last week, Lotus had 10 beta-test users on hand to tout the preduct, show proprietary applications and announce some Agenda aftermarket products.

Agenda reportedly will allow users to enter free-form information as they get it, such as notes, ideas, action lists, messages, reminders, contacts, addresses and schedules. Once the data is entered rs, contacts, address into the personal computer, users organize it by assigning it to one or more cate-gories they have created. They can then look at the information from multiple per-spectives through user-defined views.

While organizing personal information is the target of Agenda, it has been put to other corporate uses as well. In its betaother corporate uses as well in its beta-test version, it has categorized news-wire articles at the Royal Bank of Canada in Toronto, First Interstate Bancorp in Los Angeles pat it to work as an archiving sys-tem for electronic mail messages.

Voices of dissent Still, some analysts expressed skepticism about the product making a significant dest in the marketpiace. Some of the rea-sons cited include the following:

some cited include the following:

"The Agends capabilities are uneful and
address real problems of handling from text but would prove more useful of
me text but would prove more useful of
Richard Finkelstein, president of Performance Composing, Inc. in Chicago,
Richard Finkelstein, president of Performance Composing, Inc. in Chicago
dewn to Agends to keep track of their free-form text, but if they wanted to intermediate the composite the data to be a same information in the same time into their controver list data
there was performed too much time con-

Users who spend too much time con-antly updating Agenda may find them-lyes less productive at work. selves less productives at work.

The product create an overlap with some other Lottus offerings. Lotus is setting sized by the "compective with a compactive with a compactive with a contraint amount of covering," can analyze and, adding that many unemp tiet at its other data bases and spreadsheets as well.

Administrate productive wile efficient, and with the contraint and the contraint

 Agenda may resinte a tarry substantial following at the onset but could lose its charm for users. With Agenda, McSharry said, users can put all the notes on their desks into their computers. But if they wanted to take the notes out of the office. they would need a portable computer.

Prime user sues for \$100M

BY CLINTON WILDER

TAMPA, Flu. — A user of a Prime Computer, Inc. 9750 minicomputer is seeking \$100 million in punitive damages from Prime because the system allegedly failed to meet his needs as promised by the ven-

dor. Richard Mulholland, an attorney and principal at law firm Richard Mulholland & Associates, based here, further charged that Prime knew the 9750 was insdequate for his site when it leased the \$300,000 system to him in September

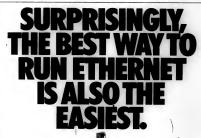
1985. Mulholland said his office still ur the computer but that it can support or the most basic office automation appli

nd runs at a snoil'a pace. The largest award ever won by a plain-tiff in a computer user suit is approxi-mately \$6 million. This was awarded to Madonna Construction Co. in Sm Luis Obiapo, Calif., by NCR Corp. [CW, Aug. 10, 1987]. Mulholland said he filed for \$100 million "to try and prevent [Prime] from foliars this to other access.

eral users in suits against NCR. "Usual there is some reasonable ratio betwee punitive damages and the actual damage suffered. This may be a strategy to ge the vendor to the bargaining table." A spokeswoman for Natick, Mass-based Prime said the company does no comment on the language.

fulholland charged that Prime m resented the 9750's capabilities be im and to a consultant he hired to dra to num and to a consustant he timed to draw up specifications for the computer needs of his firm. Mulholizard said be hoped to automate on a law office management software system he had designed; be claimed the 9750 could not support his

No trial date has been set



EDITORIAL

Fair trade

T TOOK A WHILE to come up with the right ingredients, but the U.S. House of Representatives has finally cooked up a version of the omnibus trade bill that even President Reagan may find palatable.

Included in the bill - in addition to son pork-barrel agricultural tidbits — are all sorts of goodies that, judiciously used, should further the cause of U.S. businesses trying to compete head-to-head in international markets.

The landmark bill's likely approval signals the intent of the government to get somewhat serious about the growing national dilemma of a phenomenal trade imbalance, particularly with our Far East partners. It harkens to a policy made famous nearly a century ago by Teddy Roose-velt: Carry a big stick. In this case, the big stick will be the threat of presidential actions to close was the time tract of pressonnts actions to close off the most fucrative marketplace in the world to those countries whom we feel aren't playing fair. While no one is going to argue with the bill's intent, we must not lose sight of the dynamics that got us into this mess. The fact is we lost our competitive edge in many key markets because we were out-competed, not because the Japanese or the Koreans or the West Germans were

In the computer business, the U.S. has main-tained its dominant worldwide position with superior products and superior marketing. And in Japan, the U.S. computer companies that have been successful, like IBM, marketed their wares like Japanese companies. Others, like DEC, didn't take time to learn the culture and have been very unsuccessful. That is to say, the success—or failure—formulas abroad are not always as complex as some make them out to be.

So while we applaud the intent of the trade bill, we urge extreme caution in not turning it into yet another stupid excuse for the inability or unwillingness of some to play a global game with

'Downtime'

In this age, those poor, brainless hunks are blamed for everything from incorrect phone bills to credit errors to the stock market sh of October 1987.

Now, as the evidence mounts, it seems the ost sophisticated computer afloat will take the heat for gunning down a commercial airliner.
Only this time, it's not someone's credit or some money that's lost but the lives of 290 people.

Of the many lessons to be learned from last onth's tragedy, perhaps the most important son is that we can never take too many precautions with the faith we put in the machines we create, be they on Wall Street or in the Persian Gulf. There simply are some things no machine can be entrusted to do, and compensating for our



LETTERS TO THE EDITOR

Stick to computers In search of . . .

reading about liberal or con Africs, I turn to the daily edition of the New York Times or Wal reet Journal. It is more though. Please stick to inform tion systems and telecomm personal political beliefs relative to one of many countries that on such a contro

> William H. Ele Corporate Director Managemen Allied Signal Corp.

A plug for ASM

I found the Executive Report on MIS education (CW, May 16) to be quite interesting. However, I was disappointed that no men-tion of the Association for Sys-tems. Management (ACA) nagement (ASM) w

ASM's raison d'etre is the education of information sys-tems professionals. This goal has not changed in 41 years since the association was founded in 1947. ent of the MIS person is not li mited to ent publi

Unlike the SL1, there do

Several of the sites I have It is a good bee

Provides a choice

e to allow th

Taking control

May 16]. If that is fact, akes the cause of v

mous systems that the lock of particip is left of the d opie do not vote not b

Reading between the lines

be amusing to see Jackie Collins try her hand at romancing the clone

spite the large er of computer book bookstore

Historically, publishing has aght to inform and educate the blic by delivering crisp, in-

continues this tradition, compared to robust are differed. In binning of publishing books about compared books on microcomparter bounde. With Adam Observed book on microcomparter bounde. Who days of the state of t

About the time computer books were ramping up, contemporary romances were crashing. These paperback novels sold laif a milition copies each per month when it to 12 titles were available. Publishers a jamped or the market opportunity. After three years of ramping up production, 90 individual titles were being released every month with nales of 20,000 copies each.

First they flooded the low-end market with books for begin-ners that did little to educate the

reader.
Then they failed to notice that readers could not be expected to buy multiple books on Basic in the same way a mystery reader will neek out new mysteries. er will seek out new mysteries.

Overall, many professional
writers with no relevant experience were drawn in to develop it.

In addition to the readers' sheer
inability to consume a high volume of the product, computer
books have two other production difficulties.

First, there are few experts
around. In order to be current,
many computer books must be

suthers. Fiction book buyers typically follow an author's work, so publishers love writers like Louis L'Amour and Jackie Collins; their sales are predict-

Thus, computer books are to their products what movie novelisations are to films — souvenirs of the product,
Market research indicates
that a potential market of 1.2
books worth approximately \$20
books worth approximately \$20
product sold. In order to be more
— saleshed of the unester.

Finally, is the book ick because of the slity of organisation of information or to

Is all that training worth a wallop on the wallet?

READER'S PLATFORM ROBERT HARGROVE

Once a year, around budget time, one question seems to re-appear, asked with some exas-peration by the MIS director of the person charged with provid-ing training: "We spent thou-sands of dollars last year for

worth?
Implicit in this question is,
"Perveit."
Training justification these
days seems to have fallen on hard
tases as traitical topics — Cobol, JCL, VSAM and CICS — are
supplisated by vendor-specific
code generators, off-the-shell fimancial packages that are difficult to maintain, decision sup-

port systems and other productivity tools for which the audience may not necessarily have a built-in frame of refer-

ence.
Indeed, the trainee may have
to unlearn some traditional data
processing notions, for example:
"Just put the X in column 19,
don't worry about the logic."
The idea that the company

the process.

For instance, departmental uperstars are sometimes eximpted from training in a new
echnology because they are too
ouy on a hot project that is aleady months behind schedule,
nested, expendable employees
re sent. This action not only

results, use the con-tents of this course within 30 days."

them by, but also may deprive the department of nourishing technology champions. The timeliness of training in also important. Sending studies to a class in January for an appli-cation that won't get started in-cition that won't get started un-til June wastes resources and emphasises the highly perishable nature of training, which per-

ERHAPS training should be date-stamped, like yogurt: "For best

ly days, product-spe-cific computer books were a valuable addi-

within 30 days."

These problems can be further exscerbated by managers from the "Only Wimps Need Manuals" school — those individuals who learned Cobol by candleight and see on-the-job

learn. Although hands-on learn-ing has some merit, a course can formalize the training, ensure that the technology is used effi-ciently and enforce company

standards.

Management's frustration
can be understood in light of expectations that have rises, producing seeds that are still usmet. For example, a vendor may
sell management a productivity
tool largely on the basis of ease
of use, with little or no mention
of the training needed to use it
effectively.

of the training needed to use it effectively.

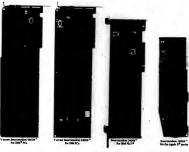
And there are the television connection. One proceeds a connection. One proceeds a too to the proceeds a connection of the proceeding the p







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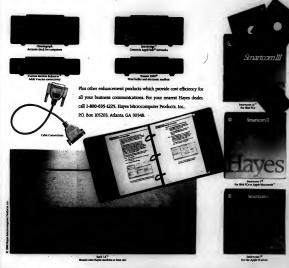






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grams while you develop and implement new INGRES systems using the same data. Best of all, the power of NGRES allows you to access

Best of all, the power of INGRES allows you to access RMS data across different hardware, networks, and operating systems—trans-parenty—from anywhere in your organization. You can even combine INGRES and RMS data in any application.

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RELATIONAL TECHNOLOGY

ARMENICH

SYSTEMS & SOFTWARE

HARD TALK

Stanley Gibson

Do standards sap vitality?



anything to do with Gorbache-vian glassast. Before long, you will be able to head down to OSF Motors, where a little esident and chief executive icer of DEC, once termed the uivalent in engineering virtu tv of a Russian truck — a standard computing platform

systems engineers.
Indeed, the current hysteria over standards makes it seem like it won't be long before there is industry-standard soft-ware in every disk drive — sim r to having a Russian truck in

my garage. To hear some tell it, whethwe like it or not, we are all nined in lockstep march to indures and there is no turn ik. We are without a doubt ded for a time when the co uter equivalents of Ferraris and RMWs will be standardized

Teradata claims 4-to-1 speed edge over DB2

BY SALLY CUSACK

Teradata Corp. last week an-nounced the DBC/1012 Model nounced the DBC/1012 Model 3, its next-generation data base machine that delivers a reported 4-to-1 price/performance advan-tage over IBM's DB2 Version 2. Teradata is aiming the new Intel Corp. 80386-based proces-sor at applications requiring very large data base. The relational data base machines were devare such as IBM's SQL/DS

nack of 1,176

rying a Terada

arter of this year. The Model 3 was

Computers aid the oil in-dustry. Page 25.
 Big Boom Part II: Pull-te retrieval. Page 25.
 NCR has a basketful of new page 25.

FEC picks VAX as running mate \ c | FEC is rounded and in the control of the cont

BY KELLY SHEA

On such does the fate of a great On such does the fate of a great nation rest: a Digital Equipment Corp. VAX-11/750 connected to a service bureau in New Jersey. That VAX — located in the data center of the Federal Electron Commission (FEC) in Washington, D.C. — and another remote VAX in the Garden State

run the programs that help en-sure that presidential candidates comply with election laws.

And with a touch Thomas Jef-

ferson would appreciate, the sys-tems are set up so that a citizen with a personal computer and a modem can, for a modest access



U.S. representatives and ser-tors are reported to the Hou and Senate and then forward

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DSDD's Hooper and VAX play role in presidential election

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No one debates the desirability of a truly open software environment. After all, standards benefit everyone. And reinventing the wheel has never been profitable. For either vendors or users. What is open for discussion is where this open environment will come from and how it will be developed.

sopen en discussion is where this open environment will come from and how it will be developed.

The Open Software Foundation point of view is simply this: it must be developed through an open

- process. Industry-wide
 - Industry-wide. Worldwide.
- Not one company. Not ten companies. But as many companies as w
- But as many companies as want to take part.

An open invitation.

What we're trying to do has never been done before. It is not without controversy. It is open to debate. But we truly believe in its promise. We're publishing RFTs.
Requests for Technology to
address each facet of the open
environment. All are welcome to
respond.
With technology offerings.

With presentations to our membership.

With demonstration products for our membership to evaluate. Conflicting ideas, open discussions, and a free exchange are encouraged. OSF will make a business decision and select a technology. Reasons will be given, rationale for selections will be spelled out. The result will be the establishment of an environment that will work for everyone.

You still have a choice.

What OSF develops will not be an end-all. Such a total solution is neither desirable nor possible in this business. Many vendors will adopt it. Not everyone will. Proprietary environments will still be available. And that is as it should be. Our intent is not to stifle creativity and competition. But rather to help establish worldwide standards for an open application environment that will benefit us all.

loin with us.

We said this was an open invitation. And it is. We encourage you to take part. To help us shape the future of the computer industry. Remember, when the open software environment is developed, we all should have a say. And that right is not open for debate. For more information, call

For more information, call or write us at 20 Ballard Way, Lawrence, MA 01843. (617) 683-6803.

Open Software FOUNDATION

SOFT TALK

Brenda D. Lewis Copyright issue blurs

Now is not the time for soft-ware writers to be lax about pro-tecting their software. On June 3, the U.S. Copy-right Office rendered its decision on whether two copyright reg-strations were necessarily to pro-

sstrations were necessary to pro-tect program — or source and object — code and audiovisual display. The verdict stated that one copyright registration would protect the screen display as well as the code that generated

However, if a specific reference to a screen display in men-tioned in the application, the applicant must deposite a visual or audiovisual copy of the display. The Copyright Office left is to the courts to determine the scope of copyright; protection. But until now, the courts have rendered diverse opinions on

indered circus copanions of treen displays.

One recent decision, handed own in Digital Communica-tions Associates, Inc. v. Soph-one Distributing Corp., in at dds with the Copyright Of-

odds with the Copyright Of-fice's policy, In effect, the court held that screen displays need a separate copyright registration in order to have copyright office has made the descrimination that careen displays are protected, the major question is, What test will the court use to detect copyright diffringement? Continued on page 29

Systems speed search for oil via modeling

BY NELL MARGOLIS

Nobody needs another acrosym—but everybody in the embst-tled U.S. oil industry needs CAEX.

Computer-sided exploration, or CAEX, is a growing body of large-volume, complex seismic and geological data modeling and cological data modeling and is software and the higheed interactive, graphics and tage-processing hardware that

It is a down-to-earth industry niche in more ways than one, ac-cording to Richard D. Schwarz, a technology analyst at Sheerson Lehman Hatton, Inc. in New York.

It works for them
"If you think people are paying
for this stuff because they've go
lots of spare time lying around
and it's such whis-bang technology, you're way off base,"
Schwarz said. The oil geologists
and explorationists, whose

explorationists, whose

Schwarz said. The oil geologists and explorationists, whose needs are seen fuefing the CAEX market to an anticipated \$1 billion by the 1990s, "aren't computer jockeys who are going to get into specumanish with you, they're professionals who are highly sophisticated in oil but not in technology. They're going to judge the hardware and the soft-mere they are they are they be the thing they have been they are they ar

What explorationists need from the technology is a way to hedge their bets about where to find oil. An awesome array of ob-

white puper published by Digital Espainest Corp., "New of white puper published by Digital Espainest Corp., "New of the Corp. of the Corp. The Corp. of the Corp.

is unchinable.

What is more, the sheer amount of seismic data that must be analyzed to best estimate where to drill a well is staggering. According to Landmark Graphics Corp., a 4-year-old dedicated CAEX company based in Houston, a traditional, or two-dimensional mission in the seismin of the control of the company of the control of receional seismic survey can oduce thousands of units of tha per cubic survey mile; over survey techniques that ovide a three-dimensional ide a three-dimen

On-alte solution Until recently, said David Mitch-ell, senior geophysical specialist at Houston-based Tenneco Oil at Houston-based Tenneco Oil

Boom times expected for text retrieval

BY NELL MARGOLIS

Though far from dogs today, full text retrieval systems, by 1992, are going to emerge as golden

retrievers, according to a reco-research report.

"A Statistical Analysis: Full-Text Retrievel Systems, 1987." 1992." published by Framing-hom, Mass.-based market research firm laternational Data research for laternative and soft-market for hardware and soft-men that lets users augmong any market for hardware and soft ware that lets users summon any word or string of words from text data bases and large docu-ment collections without being tied to key words and key word

tied to key words and key word indexes.

And we are already on the threshold of part of the boom:
With the worldwide full-tent re-trieval market expected to swell from last year's \$53.9 million to almost \$680 million by 1992, ac-cording to the report, the great-est growth rates should take place between this year and next.

handling software. In the study, IDC a

In the study, IDC segmented the full-test retrieval by hardware platform and defined platforms by the number of users. Thus, large-scale systems are those with more than 128 users are those with more than 128 users, and apertess and personal computers, one to 16 users. Healthy growth is predicted across the system spectrum but particularly in the middle, where the increasingly attractive storage, power and attractive storage, power and structure to the contract of the middle, where the increasingly attractive storage, power and structive storage, power and

currently the fastest growing segment but expected to slow to an overall average growth rate Continued on page 28

Total: \$83.916 Total: \$679.630

Something old, new found at NCR

BY JEAN S. BOZMAN

DAYTON, Onio — Building on a product base that has a solid fol-lowing in key markets, NCR Corp, will be content to tweak its existing processor line during the next few years rather than ul it dramatically. setheless, a bask

new products and enhancements are waiting in the wings, ranging on personal computers and sentific workstations to highscientistic workstations to Ingineed transaction processors and mainframe software. An outline of product changes emerged from a series of interview with senior NCR executives earlier this month. Among the high-lights were the following:

• A series of high-end NCR 9800

rould bridge the gap between the existing 9800 machines and the top-of-the-line NCR 8800 minframes. Along with new ardware, NCR said it expects to ship a transaction processing monitor, a relational data base package and a communications



The planned workstations are and to feature high-resolution graphics, computer-aided design and manufacturing packages and high-capacity disk drives. The price tag could be between \$10,000 and \$25,000.

· A series of enhanced worksta A series of ennanced worses-tions, intended as replacements for IBM 3270 terminals, is to be introduced during the next two years. The workstations, priced from \$1,000 to \$3,000, would add industry-specific functions lity to low-end terminals. Exam ples include airline reservations terminals and units used to pro-cess insurance claims.

in the mind-range, uners will have the choice of using the Unin-based Tower computers or the NCR-proprietary ITX ma-chines, including the older NCR 9300 and 9400 mechines and the NCR 10,000 line.

Native Unix will be in for the sophisticated user, and ITX will be aimed at users who

LynxOS thwarts Unix time-sharing

BY J. A. SAVAGE

CAMPBELL, Calif. — An operating system said to be 90% compatible with AT&T's Unix System V has been designed around real-time capabilities useful in manufacturing, as opposed to Unix's time-sharing ap-

Lynx Real-Time Systems, Inc: claimed its operating system, ILynxOS, supports real-time applications in areas such as process control, robotics and data collection. Additionally, the company said the operating system bail into the noftware. Lynx was able to do this, according to President Inder Singh, because the operating system was developed in a clean room environment with no held. Lynx Real-Time Systems,

system was developed in a clean room environment with no help from AT&T ulms source code. This approach was taken to cre-ate a real-time system that would not be restricted by the in-herent Unix time-sharing prop-

erties.
Even without paying license fees to AT&T, however, users will not get any discounts. The source code license fee is \$65,000, which is the same as \$65,000, which is the same as AT&T. Julis 25, when V, Release 3. And as with AT&T, additional copies are priced at \$20,000.
Laws is ferre offering the concerning.

Lynx is first offering the oper-ating system on its own Motor-ola, Inc. 68010 processor-based

seer nightmeare
of everyone welcomed s Unix
of everyone welcomed s Unix
obstitute. "It's been a disaster
or users. The world has been
nooldating behind Unix 'yanooldating behind Unix 'yaonia at Benkelong' o Unix 4.2;"
de his Reasting, a software manteng manager at Som Microteng manager at Som Microteng manager at Som MicroKeating called the Lynx annuncement at threat to nothware
verlopers, as it forced them to
xt applications to another syn-

developers, as is forced them to port applications to another sys-tem, and simultaneously pool-poohed its chance of gining market share. An AT&T spokes-man said the offering "deest": appear highly unusual: Single, who founded Execlan, inc., said the operating system thould run 90% of existing Unix applications. He said be has test-of 10 net All control of the con-

One or the other
"A number of companies have
built real-time extensions to
Unix, but they're either realtime systems or Unix systems
— not both," said Tony Friscis,
president of Salem, Mass.-based
Advanced Manufacturing Research, Inc.
— As one of the few analysts.

As one of the few analysts who has actually seen LynxOS

demonstrated, Friscia said be thinks it will find a home in manu-facturing. "Real-time has to be fast enough to meet applications needs. In a nuclear power plant, it would be nanoseconds. In a brewery, real-time might be a Lynx provides real-time in a shared-time system by prioritiz-

shared-time system by priorita-ing tasks and preemptive sched-uling, according to the company. The highest priority task that is not waiting for resource usage or I/O is able to use the CPU. Tasks

sliced. There can be a maximum of 32 job priorities.

Some analysts have said they think LynxOS has an advantage in real time because it was built without being based on AT&T's Unix, with its inherest non-real-

onia, with its innerest non-rea-time characteristic.
"The other people [Unix-like developers] are fixing what's hard to fix," said Greg Cline, an analyst at The Yankee Group.

Some analystar immediate re-action to the LynxOS was that it could not be Unix-compatible without using AT&T's source code and indicated that the com-pany may be in hot legal waters. "Anyone can look at the code it-self and see it is very different," Singh said.

A spokesman for AT&T said is havers, were not concerned

A spokesman for AT&T said its lawyers were not concerned



Firm unleashes IBM DB2 watchdog

BY NELL MARGOLIS

SUNNYVALE, Calif. - Performance management maven Boole & Babbuge, Inc. is extend-ing its multisystem architecture to give system operators and data base administrators insight notification software packs the IBM MVS environmen

development supervisor. One problem with DB2 is that

"IBM has not provided a route to real-time information s user may make what he thinks is a simple call, but that easy-to-

write call may cause a lot more work inside the system than he suspects, she said. With the Boole & Babbage

protein.

The software warns the user of any exceptional DB2 activity, including work loads that are exceeding thread capacity and

causing a waiting line to form, shortages of critical resources — such as the 32K buffer pool — and potential or actual lock

Problem solver
While the ability to monitor DB2
activity is not unique to Boole &
Babbage, an important aspect of
DB2 Manager is. Because the
product is fully compatible with
the company's automation and

the company's automation and performance management offerings across smitiple CPU's and multiple sites, the user may inolate the source of a problem or potential problem repartless of where it resides in the overall system. Queuet suid-ded, "proopie twa slot more than one DBC system — as lot more than one DBC system — and they have them on different CPUs and in different cent locations. You really need that integration to get the total picture."

that integration to get the to picture."

DB2 Manager will be pric from \$25,000 to \$40,000, but on site configuration, Ques said.

HARD BITS Masscomp's \$10M pact tactical coup

Corp., or Masscomp, Westford, Mass. Westford, Mass., recently signed a \$10 million contract with Lockheed Missiles & Space Co. in Austin, Texas. The contract calls for a minimum of 72 of Masscomp's 6000 series Unixbased real-time systems. The 6000 line was announced in March. Lockheed will incorporate the computer systems in the U.S. Naval Warfare Command's Tactical Environmental Supp run through 1992.

Encore Computer Corp. re-cently signed a three-year, \$21 million contract with Disc Com-puter Systems, Pty. Ltd. in Australia to be the exclusive dis-core's Multimas 310 and 320 parallel processers. Encore said it has an installed base in Austra-lia worth \$2 million, One system is at the Rayal Melbourne Insti-tute of Technology.

Sun Microsystems, Inc. announced that Ital Business Computer Systems Ltd. will resell Sun's 3861 line of worlestations in conjunction with Autodesk, Inc.'s Autocad and Autoseids oftware in Southern California. Ital is an authorized value-added reseller for IEM, Compan Computer Corp. and Sun and is an authorized delacter for NEC In-NC

NCR

CONTINUED FROM PAGE 25

veting and support at NCR's U.S. Data Processing Group. Many ITX systems users have fewer Many TIX systems users have fewer than 10 data processing professions on staff and burdly have the time to write custom applications. Typically, an ITX machine will be noted in conjunction with an application to asmall along, lames said: Connequently, the ITX based systems will be going heard behard with BMS ar-countly announced Application Sys-tems 400 family of processors, NCR edi-cials infutited.

tensive Damily or processors, rus. succional statistical.

All controls and pattern of the processor of the

end workstations.

By 1991, NCR plans to base its highend workstations on the 80486. Generalpurpose PCs will then use the Intel
80386, for the most part. Use of the Intel
80386 for the most work the property of the Intel
80386 will be shifted to low-end PCs or

discontinued.

As a worldwide supplier of systems,
NCR has pledged to continue to support
international standards, including Open
Systems Interconnect and Mandacturing
Automation Protoco/Technical and Office Protoco. "I want to provide a complete suite of OSI interconnect products
as well as a suite of products that will connect to the IBM world and the DEC VAX
world "Yatera commented."

world," Yates commented.

Looking to the future, NCR said it expects to unwell a series of Integrated Services Digital Network products by 1991.

Boom times CONTINUED FROM PAGE 25

50% in the five-year period covered by of 60% in the five-year person covereu up IDC. Not only are small-scale systems the particular beneficiaries of the factors driving the market as a whole, but also, this segment provides a large new class of users with a migration path to mediumand large scale text retrieval.

Growth spart: Orresponding to the basis of the year growth rise a expected in the large scale systems enterport, large of such basis of the spart of the basis of the spart of the basis of the spart of

SOFTWARE NOTES Acquiring minds would like to know

In an acquisition that it has managed to keep quiet so far, On-Line Software International, Inc. recently purchased two BM DB2 utilities, DB/Pro Edit and DB/Clist, from Updata Software Co. in Holmdel, N.J.

Holimotel, N.J.

Updata Chairman Barry Goldsmith has shown a knack for selling off successful product lines, having allowed Duquesne Systems, Inc. to acquire the firm's Single Image Software line in 1986. Goldsmith earlier sold the Top Secret security package to Computer Associates International. Inc. while serving so chairman of CGA Computers, Inc. before founding Updata.

On-Line, a CICS systems house in Fort Lee, N.J., toward the DB2 follow-on market. Last September, On-Line acquired Xtended Computing, Inc. a X/200is, a set of DB2 utilities and catalog manager. The latest release of On-Line's UFO sup-ports DB2.

Users of the fourth-generation language Powerhouse from Cognos Corp. will be able to gain access to mainframe data from Cognos-supported platforms, in-cluding the Digital Equipment Corp. VAX, the Hewlett-Packard Co. HP 3000

and HP-US, OS/2 or Microsoft Corp. MS-DOS-based personal computers, if Cos-nos' agreement with DB/Access, Inc., bears fruit. The pair plans to jointly devel-op an interface, Load/Powerhouse, for sale this fall.

Allbane/4GL, a fourth-generation lan-guage from HP, is now available on HP's Series 900 Precision Architecture pro-cessors. The language includes an SQL data base management system.

A vendor of dental, legal, construction and other specialized accounting systems for the IBM DOS world has made its prod-uct line available for the VAX. Real-world Corp. in Concord, N.H., will sell the modules for the VAX at \$2,500 each.



How Customer Support Will Keep Pace with Tomorrow's Modem Technology

Lewis

CONTINUED FROM PAGE 25

Let's examine an issue in the current Apple Computer, Inc. v. Microsoft Corp. and Heulett-Packard Co. soit. An underlying issue is whether Apple has a

copyright on its pictorial expression of using file folders to simulate file cabinets, pall-down menus to select functions and a trash can to discard files. According to the Copyright Office, if

these screen display images consist of original creative pictorial expressions, they are able to be copyrighted. Another issue in the case may be thether HP appropriated the "look and sel" of the Macintosh by using similar

images to express similar messages in a similar screen format. If there is a sub-stantial similarity between the two screens, then it is possible that the com

will find an infringement.
Substantial similarity is the test used most frequently to uncover copyright in-fringement. In applying the test, howev-er, courts must answer one question: What is the "protected expression" in

uter software? Courts must determine whether pyright protects only the exact writt

code of a program or the broader interrelation of programming elements.

A recent case in point is Whelen Associates, Inc. v. Jaston Dental Laborato
ry, Inc., in which it was held that the

ssion of computer software

ists of the specific interrelati of structure, rout gramming techn

Also, the U.S. Supreme Court de-cined in January 1987 been the appeal decision. This should control of Appeals decision. This should control of Appeals decision. This should be the decision of the decision. This should be the decision of the decision. This should be the decision of the loophole through which infragement of a computer program team. Some courts argue that some portion of an author's original code must be ap-propriated of conjuried terisingement in -to be found in the lock and food of another programmer's computer acreem digulary.

en disp programmer's computer scre-But the courts should recomi there are many ways for program to achieve the same processing of ing of tran

actions and to write individual routines for specific purposes without resorting to copying source code.

Consequently, just because the code that creates a visual display is different does not negate the fact that it looks and feels like another programmer's original pictorial expression.

The interpretation of copyright protition should not be so broad that it go

eyond the program lered set of instructi mer's specific or

dered set of instructions to include underlying ideas and concepts. It is the collection of ideas, ordered in a specific manner that is protectable by copyright.

The court in the Whestin case broad defined the "expression of the idea" as the manner is which the programs operate, controls and regulates the compart in receiving, assembling, calculating, retaining, correlating and producing used. er on the scre printout or by an This court de

rwis is the president of En Finer Corp., a Rai N.C., consisting firm specializing in software and loodware legal insteas.

Teradata

CONTINUED FROM PAGE 23

sis. The Model 3 is noftware and hard-ware compatible with the company's cur-rent. Intel 80286-based Model 2 ma-chines. An upgrade feature, which is field-installable for Model 2 systems shipped after this month, is also available for \$24,000. Teradata currently claims an in-

24,000. Teradata current allow base of 69 customers. According to Barnes, 90% of Teradata's customers use the machines in a lecision-support capacity. The Model 3 was developed to extend the company's an incritical production processing

Runed or 3 MIPS
The Model 3, like its predecessor, grounded in parallel-processing article ture, and each Model 3 system process is rated at 5 million instructions per so and. According to the vendor, the system is configurable from as few as three ph ors to as many as 1,024 to probling of up to 3 billion instru

Each processor includes a r 4M bytes of dynamic ran-memory, which is expanded

tile disk cache to increase the effi-disk I/O bandwidth. The disk cach entive applications, B mai 2M bytes of m on all the disk process

and DEC/1012 Model 3 will be ge ally available in November. An entry-Model 3 system that includes soft and disk storage will range from app mately \$275,000 to \$325,000. A ty Model 3 system with 99 m with 22 proc

Even as datacomm systems get more complex, users are becoming more dependent on them. That's a double whammy that makes custom support one of the hottest data communications topics of the day

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hours per week of real-time bleshooting assistance. Users dial in, and UDS technicians go on-line to the suspect equipment. About 90% of the calls result in on-thespot solutions

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step ahead of evolution. For specific product details, contact Universal Data Systems, 5000 Bradford Drive, intsville, AL 35805 Telephone 1-800-451-2369 or 205/721-8000: Telex 752602 UDS HTV

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FEC

CONTINUED FROM PAGE 23

to the FEC, "all other reporting entities — party committees, nonpurty commit-tees, presidential committees and others

tees, presaucasa committees saw corre-file directly with us," Hooper explains. In calendar year 1988, be says, ap-proximately 50,000 documents will come through the FEC, resulting in more than

into the system. To add to the urgency, the FEC is required to get each document on public record within 48 hours.

The documents are microfilmed and The documents are microbinned and coded, and the data is entered into the FEC's time-sharing system, which is run by DEC's U.S. Operations Center in Par-sippany, N.J. The host there is a VAX 8650 connected via three 56K bit/sec. 8650 connected via three york on one on the back of the b.C. operations. On-site in Washington, DSDD operates a VAX-11/750, which is used primarily for gener-

ating printed reports. Data entry is done during the day in D.C. on DEC VT241 and VT220 terminals, batch-processed at night in Parinppany and downloaded back to the 11/750 in Washington, where re-

to the 11/750 in Washington, where re-ports are ready first thing every morning. The FEC has a six-year, \$3 million con-tract with DEC for this program. Why a service bureas? "That was the approach we took from the very begin-ning at the FEC," Hooper says. "The rea-son was that we didn't want to invest is an

operations center per se. We didn't have to be cognizant of the raised fiour and air-conditioning and the security of tapes and

storage and systems engineers on site."

Because of this, Hooper's staff is not a large one — about 30 people — and indes programmers, statisticians, cod d data entry personnel. While small, the data systems depo

White small, the data systems depart-ment is by so means side. This year, the FEG is boay with the matching deed pro-cess, whereby sightle presidential codes, sometimes of the property of the property of the matching of the property of the pro-sent contributings of delignation to go beds, "If a candidate comes in for matching feath, we have as odigitate to go beds, when the property of the pro-tain, we have an odigitate to a go bed the process." Hooper capiles. It has said is currently in propers for a number of candidates, be adds. Public funds are also made available to the two mips-party convenient committees, and the FEC man the number of the program.

Not only that...
In addition to supporting the current data processing needs of the FEC, Hooper, under the direction of Deputy Staff Director for Management James Pehrkon, is experimenting with other means of supporting the full FEC staff of about 250,

One experiment is under way in the of-ce of the general counsel. There, Hooper has set up a prototype system to Hooper has set up a prototype system to test word processing and document prep-aration within the agency. He has in-stalled a second 11/750 on-site as well as two DEC RAB1s for storage and has wired 17 intelligent DEC workstations to the 750, which functions as a file server.

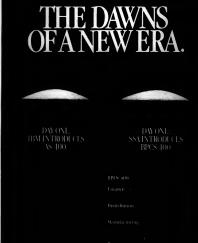
the 750, which functions as a file server. Hooper has brought up a portion of the general counsel's staff to be pilot users of the prototype. Attorneys prepare their briefs directly on the system using DEC All-In-1 and WPS-Plus software. The docscenury reviews and changes have been ade by all the required people, then are stput on a laser printer. Normally, these ments are prepared manually nai draft, when they are entered

The setup is a test to see not only how the computer system works but also how the members of the particular work group interact. Hooper says be plans to bring up steract. Hooper says be plans to bring up second test group in the general counsel vision in September. The goal is to auto-ste the entire FEC by early 1990. Yet another function that data systems apports is the public Direct Access Pro-ram, in which interested parties can ac-ses the commission's financial disclosure.

ss use commission's financial disclosure ta base. Any individual or group with a costs the communion is the marial encourage terminal and a mode on mules respect through the FEC's press office to purchase access to a mirror image of the data. This is done via this such an Tymerd McDowald Dough, Neventh Systems (McDowald Dough Systems (McDowald Systems (McDow

State records offices are given free data

SSA



0il

CONTINUED FROM PACE 25

nic survey data — in the form of acoustic impulses recorded onto magnetic tape — had to be sent back to a lab for ing and was eventually translated into large maps, laboriously hand-drawn with colored pencils. "Now," he said, "we can load output from the processing cen-ter directly into workstations for inter-

in tenneco a case, the workstations and the interpretation software they support are supplied by Geoquest Systems, Inc., another 4-year-old company based in Houston. In addition to speeding the explorer's tasks, Mitchell said, the workstation-based technology has subered in increased accuracy and productivity and eed explorationists ency on data centers. nists from total depen

But the big story is the integrat he said. "We can interact with the compa-ny's data base, with well-log information;

Giant oil companies, according to Dur-wood Craft, a district geophysicist at New Orleans-based Placid Oil Co.'s home office, "were experimenting with interpre-tive software back in the '60s, but the ove sortware back in the 60%, but the computer power just wasn't there." For less-than-giant companies, the dollars were not there. Now, Craft said, "the ma-jors are using Crays." Placid is using Landmark dedicated CAEX workstations and noftware, which are playing a pivotal role in a venture that could be either Plac-

id's greatest or its last. A Hunt brothers firm, the company has formally been in bankruptcy since 1986. Placid is attempting to work its way back to solvency by drilling for oil in the 1,520to 2,500-foot-deep waters of the Green Canyon Lock 29 in the Gulf of Mexico of

The early days

Early exploratory efforts in Green Canyon required — and yielded — vast
amounts of data, both Place's own and adional data bought from research orga-ations. "We couldn't handle it with our staff without technological aid," said Pe-ter Kane, Gulf of Mexico region district geologist at Placid. Even with unlimi staff, he added, there were limits to h far humans could go in analyzing the data that could tell the Placid team whether Green Canyon was likely to bring them fortune or ruin.

The company turned to CAEX. With admark workstations and interpretation software, Kane said, a team of 21 people — eight technologists, four geolo-gists, four geophysicists and five support staffers — was able to view fault putterns statiers — was able to view fault patterns and sait structures from multiple directions and reconstruct the history of oil deposits at the subsessite in an amount of time that would have been impossible for so small a staff working manually — and at a level of specificity that would have een impossible for any number of human

Green Canyon, slated for production by mid-August, will be the world's deep-est subsea oil well drilled from a floating est subsea oil well drilled from a floating production platform. It will depend heavi-ly on CAEX systems for ongoing map re-vision that will reduce the decision time between wells, Placid' a Craft said. With-out CAEX, he added, "you just couldn't play the game out there in the gulf."

Gibson

CONTINUED FROM PAGE 23

be able to get any color of computing yo want, as long as it is black. Those boargeois software systems -- VMS, MVS and others -- are header

for the ash heap of history. A new user will emerge, free of the shackles of the

The vendors won't make any profit, of course. That would be stealing from the workers, those users who put their ers to the wheel to wrest gree tivity from computers. Those reaction-ary vendors will be sent to re-education aps and forced to work on com production cooperatives somest

the Midwest.
Indeed, it shall be as Karl Marx fore-saw. "From each (vendor) according to his abilities, to each (user) according to his needs... Users of the world, unite! You have nothing to lose but your

Whos! Wait a minute! If global eco-nomics is any guide, it just may not hap on that way. Sure, the stand

Sure, the standards movement was have its influence just as nocialism has in-fluenced capitalism. But has nocialism triumphed? It doesn't look that way to-day. Without question, the countries of established socialism are now adopting

lutely no guarantee it will sell. In the

lately no quarantee it will sell. In the computing community, despite the sleal sim of the open systems movement, there is no desforcement wing to make there is no desforcement wing to make Experients, another great idea, was Experients, another great idea, was causier and to foreir understanding and peace. Today, nobody speaks it, and many have newer beard of it. Why? Mayly become in land to history, to culture, the control of the community of of open systems, not their open will determine their rise or fall whether they ever become star

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of our software. We selected C for the portability it would bring to the SAS System, but weren't about to risk our code on just any maintraine C compiler. So we tried them all. When none could meet our coacting requirements, we creeted our own: the SASIC compiler.

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activessing
— A CMS Recou/TSO CLIST interface Support for signal handling including program checks and terminal interrupts, and non-standard signals

interrupts, and non-standard signals such as timer interrupts and stack Many built in functions including

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high standards. That's why we'd like to send you the SAS/C compiler, under

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PRODUCTS — HARDWARE

rocessors

The Federal Systems Division of Gould, Inc., has announced the Deaknide Temnc. has ann

The supermini system was designed to meet Nacism 5100A standards. It comes with a choice of either the Gould MPX-32 real-time operating system or the Gould UTX/32 Unix operating system with real-time enhancements. The multiuser sys-tem is 17-in. wide by 30-in. high by 34-in.

ep. The Deskuide Tempest Computer Sys-m costs \$81,000.

Gould Computer Systems Division, 6901 W. Sunrise Blvd., Fort Lauderdale, Fla. 33340. 305-587-2900,

Data storage A disk controller that reportedly will en-hance the configuration options for Digi-tal Equipment Corp.'s Microvax and Mi-

ters is now available om Dilog Corp Called the MQ696, the multipurpos controller was designed to interface up to two enhanced small device interface Winchester disk drives with data transf rates up to 2.5M byte/sec.

The system can also interface up to two SA450-compatible floppy disk drives two SA450-companies noppy tasa univer-to DEC Q-bus computers. A command queue buffer that can reportedly store up to 16 seek commands for the hard disk is also included. The controller is competible with the DU-driver contained in the DEC RT-11, MUMPS, MicroVMS and

Ultrix operating systems. The unit is con-tained in a single dual-height module. The MQ696 will cost approximately Dilog, 1555 S. Sinclair St., Anaheim, Calif. 92806. 714-937-5700.

An electronic vaulting service that was designed to provide on-line, real-time re-covery of critical applications has been in-troduced by Sungard Recovery Ser-

vices. Dubbed Sumwalt, the product is targeted primarily at transaction-orient companies in the banking, sociation and manufacturing industries. Sumvals replaces the traditional method of physically transporting backup tapes to off-site facilities by implementing an or-line system that captures and redi-companies of the companies of the compani

ry link between the production center of the vault location.

Sunvalt costs from \$3,500 to \$15,000 The monthly fee includes hardware software and telecomm mications re 1285 Drur

Wayne, Pa. 19087. 215-341-8700. Terminals

BTG, Inc. has augmented its line of Rug-ged/Tempest transportable worksta-tions. The company is now offering a Mo-torola, Inc. 68030-based model as part of its RT-300 series.

Called the RT-360B, the workstation reportedly performs at a rate of 5 million. reportedly performs at a rate of 5 million instructions per second and supports the Motorola 68862 floating-point processor. The unit also supports up to 100M bytes of disk space internal to the chassis using removable Winchester cartridges, the vendor said

BTG's RT-300 series of workstations was designed specifically for military and industrial applications that require use in sh environments. The RT-360B costs from \$46,000 for a flat-panel configuration to \$65,000 for a 16-in., 1,280- by 1,024-pixel color ver-

BTG, 1945 Old Gallows Road, Viens Va. 22180, 703-556-6518.

Printers/Plotters

neywell Bull Italia has announced a h-resolution, 18-wire, dot matrix color

printer.

The 4/68 is to be equipped with a moving ruby print head that reportedly provides a speed of 600 char /sec. in draft mode and 150 char /sec. in letter-quality print modes. The print head can be switched between two wire configuraswitched between two wire configura-tions: staggered for word processing in higher solutions and dual in-line for data processing. The printer can accommodate one to five carbon copies and is said to have a mean time between failures that is more than 7.000 hours. The 4/66 costs \$2,450. Honeywell Bull Itala, 200 Smith St., Withham, Mass. 0216. 617-895-3672.

The Data Communications Division of Harris Corp. has announced a laser printer that provides output support for both stand-alone microcomputers and network attached devices.

The Harris 9812 Laser Prin tuperts a wriety of paper sizes and has an optional paper cartridge unit that fiolds up to 500 sheets, expanding total paper capacity to 750 sheets, the vendor said. Available print applications include the capacity to the capacity to 500 sheets, the vendor said. straight text, charts, graphs and ove

ad foils. The Harris 9812 costs \$4,200 for a ba configuration. Harris, Data Communications Divi sion, 16001 Dallas Pkwy., Dallas, Texas 75248, 214-386-2000.

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standards at such a modest price. The movative board also draws less power and runs confer, which become eliability. MainLink II's half-rand size

means you can install it in any laptop PC—such as the Datavac® SNAP "— that accepts add-on boards. You can turn that PC into a truly poetable terminal. The half card also saves precious space made the case of desktop and "luggable" PCs.

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NEW PRODUCTS - SOFTWARE

Systems software

The Wollongong Group, Inc. has in-troduced Eumice BSD 4.3, an enhanced operating system environment that pro-vides a University of California at Berke-

vides a University of California at Berke-ley Unix A.3 environment on Digital Equipment Corp. VAX/VMS systems. According to the vendor, Eunice BSD will allow VAX users to access VMS, Unix or integrated VMS and Unix operational environments. Version 4.3 can be used for the same applications as the Berkeley VMS.

tor the same appacatons as the Berkeley Unix, with the exception of system ad-ministration, which is done under VMS. The product reportedly can produce both Berkeley Unix and VMS executable files from the same Unix source code. Eunice BSD 4.3 costs \$5,000 for a

EURICE BSD 4.3 costs \$5,000 for a four-user Microvax and \$17,200 for a 16-user VAX 8800. Prices include Unix Sys-tem V, Release 2 licensing. The Wollengong Group, 1129 San An-tonio Road, Palo Alto, Calif. 94303. 415-962-7112.

Applications packages

Updata Software Co. has released an updated version of its ISPF-style editor for IBM's DB2 and SQL/DS that allows

ers to create and edit test tables. DB/Proedit Version 3.0 features everal enhancements, including Find summand and double-character block summands and the ability to copy from one table even if the structures are dis-similar. The software also features em-

milar. The software also teatures edded SQL testing.

Annual rental costs for DB/Pr Annual rental costs for DB/Proedit Version 3.0 range from \$1,775 to \$5,400. Perpetual ficenses cost from \$5,500 to \$16,200. Updata Software, 960 Holmdel Road, Holmdel, N.J. 07733. 201-946-2000.

Tandem Computers, Inc. has intro duced Surveyor performance-manage ment software for its series of Nonstor

computer systems.

According to the company, Surveyor
will manage system performance data and
saistis in capacity planning functions
saistis in capacity planning functions
saistis in package is based on Nosstop SQL, Tandem's relational data base manageries
software, and will permit easy access to
performance of alta trough preformance
performance reports. Exception reports
are also provided to simplify identifying
and monitoring potential performance
problems.

Surveyor costs from \$2,500 to \$5,000 for the initial license fee, depending on

Tandem, 19333 Valico Pkwy., Cuper-tino, Calif. 95014. 408-725-6000.

Version 5 of the SAS System for IBM's 370, 3080, 3090, 4300 and 9370 series running VSE has been announced by SAS Institute, Inc.

raise running VSE has been announced SAS Insultants, Inc.

The SAS System used.

The SAS System used in a materiated activare system for data mannerate and survey system for data mannerate and survey system for data mannerate and system of procedural transports and presentation.

Enhancements to the base SAS software include the ability to rend, write and potter VSAM files using the SAS software in procedural inanguage and an SAS attention. Version 5 reportedly includes a statement. Version 5 reportedly includes the grated modules for data entry, re-

rieval and management; report writing nd graphics; an interface to IBM's DL/1

and graphics; an interface to IBM's DL/1 data bases; and other options. The first-year license fee for base SAS software ranges from \$3,200 to \$15,000, depending on machine classification. SAS Institute, Box 8000, SAS Circle, Cary, N.C. 27512. 919-467-8000.

Languages

Unify Corp. has announced an extension of its Accell fourth-generation language development system that reportedly adds the graphical interface of Microsoft Corp.'s Windows to Accell-built Unix ap-

plications. According to the vendor, Accell/CP for Microsoft Windows offloads presentation processing from the Unix host computer onto Microsoft MS-DOS-based personal computers to im-prove system performance and productiv-

Features include pull-down windows, scroll bars, icons and a mouse. Windows are used to separate different tasks, and the product runs on all Unix, Xenix and aix-derived systems, regardless of ma-

Accel/CP costs from \$1,185 for three uners on an IBM Personal Computer AT or compatible to \$29,625 for 75 users on

a mainframe. Unify, 3870 Rosin Court, Sacramento, Calif. 95834. 916-920-9092.

Training software

Data Base Architects, Inc. has an-nounced Online Expert, software that provides Culinet Software, Inc. developers with an interactive computer-based training system. In simulation mode, in-formation is provided that describes each formation is provided that describes each Callinet tool, the use of each acrees and the options for each field. The software also provides on-line access to a 86 event methodology for dollageing and building Cullinet applications and data bases. Online Expert is available now. The i-cense fee depends on user configuration. Data Base Architects, 890 Atlantic Ave., Alameda, Calif. 94501. 415-521-7300.



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BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 55 KNOXVILLE, IA 50196-2008

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COMPUTERWORLD

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MICROCOMPUTING



Lotus sees a shrink



lers. But according to a Micro-fit source, the switch may use a hitch in Lotus's attempt have Release 3.0 run under th OS/2 and Microsoft's MS-

Here's how it may work: If Lotus wants Release 3.0 to sim ply run under MS-DOS and OS/2, a non-Microsoft compile: is fine. But if Lotus wants Release 3.0 to take advantage of OS/2's multithreading — that is, let applications multitask within themselves — it may not be possible with most of the C compilers on the market without adding a huge amou extra code. Watch this space

Mini makers bungle mi-cros. Why is it that most min computer and mainframe vencomputer and manurame ven-dors do such a poor job in the personal computer market? Be cause PCs aren't host comput-ers, that's why. And adding mications pieces, which eady available off the

Dbase creator brews up 1-2-3 add-in

BY ALAN J. RYAN

INCLINE VILLAGE, Nev. — C. Wayne Reservi-C. Wayne Ratiff is at it again.
The creator of Ashton-Tate
Corp.'s Dhase has developed
Summit, a Lotus Development
Corp. 1-2-3 data base add-in that

month.
Summit, part of Migent Software, Inc.'s Emerald Bay family, reportedly provides an open platform for developing applications that share data mised a common storage and retrieval a common storage and retrieval method. Because of the platform, Summit is able to access and analyze any Emerald Bay data file from within 1-2-3, the common soil.

mpany said. The core or

Data View The changing face of OS/2

ministrator, Import/Export Utilities and Emerald Bay Personal Engine — are included in Summit, allowing Sommit users to create an Emerald Bay data base within 1-2-3 and access the Emerald Bay data base dictionary, which maintains field types and

Big user base The \$195 Summit package wil allow the three-million-user 1-2-3 installed base to use Emerald Bay's data base management ca-

according to David Pat-digent's vice-president of marketing.
Additionally, Migent said it
has shipped the first set of software updates for its Emerald
Bay development products —
Eagle and the Developers Toolkit for C.

The updates to Eagle, Emer-aid Bay's Dbase-like program-ming language, also written by Rathiff, extend binary field sup-port and add new language ex-Eagle is the first personal

Eagle is the mrst personal computer data base product to offer binary field support, the vendor claimed, which means that unlike Dosse, Emerald Bay applications can store, retrieve and manipulate virtually any type of digital information, from data and text to graphics or record.

sound.
Improvements of the Eagle
Import/Export Utility allow exporting and insporting of data between any Emerald Bay application and Dhase, 1-2-3, ASCII
delimited or fixed and Migent's
Ability and Ability Plus series.

Registered users will receive the updates from Migent free of charge. Eagle and the Develop-ers Toolkit for C are priced at \$495 each.

Migent also announced that

DGE, a data base graphics pack-age from Pinnacie Publishing, will support the Eagle data base management sus priced at \$195.

A comparises shopping list for the PC market. Page 37.
Hyosang unveils IBM PC compatibles. Page 39.
IBM Quickwriter goes to work. Page 50.

Microsoft in push for Cobol Micro Focus version keys language strategy

BY DOUGLAS BARNEY

For years, Microsoft Corp. has hawked a wide variety of lanhawked a wide variety of has-guages but has emphatically pushed C as the language of the future. But now, DP types can rest assured that Microsoft does indeed love Cobol. The firm has amounced a Cobol strategy both to show that affection and to have MIS into the firm's OS/2 operat-

Cobol 3.0 strategy marks the

end of Microsoft Cobol as we know it and the beginning of Mi-cro Focus Ltd. Cobol, which will be the foundation of future Mi-crosoft Cobol products. Despite Microsoft's G lear-ings, the firm gushed over Cobol during the recent assessment

ighter.
"It is not a downgrading of
Continued on page 50

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pardon the expression - overrun with mice.

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intosh from the 512Ke to the Macintosh II. It's

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support network. One which our competition.

with all due modesty, would be hard pressed to duplicate.

For the name of the authorized MacMainFrame dealer nearest you, call 1-800-289-2526, ext. 28. Or write Avatar Technologies, 99 South Street, Hopkinton, Massachusetts 01748. Admittedly, you could give your Macintosh users something less than MacMainFrame. But wouldn't that be scary?

REVIEWS/NEW PRODUCTS

pport: Policies - Satis-

Support: Policies — Satis-tory. Technical support — bisfactory. HP offers a one-ar warranty on the Vectra, pairs are handled by autho-ed service centers. Optional

support policies and extende warranties are available. Add

and scored above average in al-most all categories, the \$11,633

price tag for a system with a 103M-byte hard disk, 4M bytes

of RAM, an EGA board and a

Compaq Deskpro 386/20 Although no longer the fastest 386 system available, the Compaq Computer Corp. Deskpro 386 still holds its own among the

386 still noise its own among use tough competition.

Performance: The Deskpro 386/20's CPU rating earned an excellent acore. With a 60M-byte Control Data Corp. hard drive, the Deskpro 386/20

Rating the 386 speed demons

20-MHz systems from HP, Compaq, others get put through the paces

What started as a trickle turned what started as a trickle turned into a stream and then a flood. Between Comdex/Fall '86 and Condex/Fall '87, the number of Intel Corp. 80386 vendors green from two to 27. Today, more than 100 companies sell 386-based systems, with more ven-dors entering the market every

week. For the following comparison, we asked vendors to supply so with their best principerformance 20-Mits 386 system within the following guidelines 4M bytes of random-access memory, their fastest hard drive in the 60M- to 90M-byte range and an IBM Enhanced Graphics and an IBM Enhanced Graphics (Generally, one serial port and Generally, one serial port and

Generally, one serial port and one parallel port are standard. Some systems also include a Some systems also incruoe a game port. All the 386 systems tested support a math coprocessor. The best of the bunch can accept both the Intel 80387 and the Weitek 1167 chips. Most of the system

with either a 5%-in., 1.2M-byte floppy drive or a 3%-in., 1.4M-byte floppy drive. Several sys-tems came with both drives. No system came with fewer th four 16-bit slots and one 8-bit slot. Many of the systems also in-clude 32-bit slots, some of which clude 32-bit slots, some of which are proprietary and can handle only the vendor's own boards. Currently, the only standard for 32-bit slots is for Micro Channel boards, which are available only for IBM Personal System/2 com

ewlett-Packard Co. Vec tra RS/20 PC is a floor-standing system that runs at 20 and 8

Performance: The Vectra scored a very good in CPU speed. The 103M-byte HP ESDI ard drive demon speed and earned a very good score in sequential access. The Vectra also rated a very good score in hard-disk random ac-

HP'a Voctra RS/20 PC ranks tops for hardware

Compatibility: Software — Very good. Hardware — Excel-lent. Although we had some ini-tial difficulty getting Windows 386 to work, the Vectra ran all technical support is available through dealers, but HP charges \$45 per problem or incident for its own toll-free technical sup-Value: Satisfactory. Al-though HP'a Vectra performed

software in our test suite and worked with each component of our hardware test suite.

Expandability: Excelle

Expandability: Excellent. The Vectra came with a 103Mbyte drive, three serial ports, two 8-bit slots, six 16-bit slots and two proprietary 32-bit slots. Documentation: Good. Documentation for the Vectra is

voluminous. There are separate manuals covering EGA, I/O, utilities, the setup and terminal pro-grams and "learning about your computer." A table of contents and an index accompany the

Ease of use: Good. Setup: Good. Setup and di-

earned a satisfactory score in se-quential access. Hard-disk ranm access earned a very good

acore.

Compatibility: Software —
Very good. Hardware — Excellest. All the programs in the test
suite ran without difficulty. Compaq'a own version of OS/2
worked fine. The four peripherals used in the hardware comestics software are bundi the Vectra, as are DOS and own 386. Special features include two-way interleave in page mode so the CPU does not have to wait for the memory re-

as used in the hardware com-patibility test also ran fine. Expandability: Excellent. There are one 32-bit, five 16-bit and two 8-bit slots on the Com-paq motherboard. The 32-bit slot is proprietary and not comfresh.
Workmanship: Very good.
The Vectra is well-built and solidly constructed. We found no
last-minute additions. The motherboard is nicely laid out and detible with either 8- or 16-bit d. The case is particularly

Compaq's documentation is clear and well organized. There are three books that cover oper-ations, Microsoft's GW Basic and DOS. The setup instructions are geared toward novices, and formation is provided on trou-eshooting and video board in-

ompoq'a Deskpro 86/20 still has merit

Enne of use: Good.
Setup: Good. Compaq bundles setup, diagnostics, Cenjud expanded memory manager and disk caching drivers with the system. Compaq DOS is also

Overall construction of the Deskpro 386/20 is solid. We found no last-minute additions to

are good. Supra

are good.
Support: Policies — Satisfactory. Technical support —
Satisfactory. Compaq offers a one-year warranty on the Desk-pro 386/20. Repairs are handled through authorized dealers only. Optional support plans and ex-Optional support plans and tended warranties are avail tended warranties are available. Technical support for the Design 386/20 is offered only through authorized dealers. Of the two local dealers we called, both answered our questions correctly but only one truly knew the system and related peripherals well.

Values Satisfactory. For

peripherals well.

Value: Satisfactory. For
\$10,896, the Deskpro 386/20
with a 60M-byte bard disk, 4M
bytes of RAM, an IBM Video
Graphics Array (VGA) board and
monitor scores high in CPU
speed and hard-disk random
access. Dealer-only technical support can result in spotty service

 Advanced Logic Re-search's Flexcache 20386
 With the second fastest CPU speed of any product tested, the Flexcache 20386 from Advanced Logic Research, Inc.

competition.

Performance: The system rated excellent in both CPU speed and in hard disk sequential access. Hard disk random access.

got a very good score.

Compatibility: Software —
Very good. Hardware — Excellent. The Flencache ran all the

lest. The Fletcache run all the programs in our software test suite without difficulty. ALR claimed the unit is compatible with Microsoft Corp.'s OS/2. Software Developer's Toolkit. The four hardware periphenal used in testing — a Hayes Microcomputer Products, inc. modem, as Ethernet card, a checken, as Ethernet card, a checken, and the production and Vision 7, Inc. wideo graphics array board — did not

sphics array board — did not graphics array board — did not pose a problem.

Expandability: Very good.

Expandability: Very good.

Expandability: Very good.

The ALR computer field short in only one expandability area —

the machine's lock secures only the keyboard, not the case. The Flentache comes with two 8-bit slots, four 16-bit slots and a pair of "hi-low" 16-bit slots that combine to make one 32-bit slot.

Hut can only be used with ALR'a.

that can only be used with ALR's memory board. Documentation: Very

good. ALR's documentation of-fers installation and operating in-structions for beginners but no short form for expert users. Dia-grams complement the text ma-

Ease of use: Satisfactory. The power switch on the Flexcache is set in a trapdoor on the back panel, a real inconvenience if the unit is sitting under a desk Continued on page 38

Test results ns of 20-MHz 80396-hand sectors

CPU speed	Excellent	Very good	Very good	Excellent	Very good	Very good
Hard-disk requestial access	Excellent	Brodest	Excellent	Satisfactory	Very good	Very good
Software compatibility	Very good	Received	Very good	Very good	Very good	Very good
Hardware compatibility	Rocellest	Excelest	Excellent	Excellent	Excellent	Poor
Expandability	· Very good	Very good	Excellent	Excellent	Excellent	Very good
Documentation	Very good	Espellent	Good	Excellent	Good	Very good
Base of use	Satisfactory	Good	Good	Good	Good	Good
Technical support	Very good	Good	Very good	Settefactory	Satisfactory	Good
Value	Good	Good	Good	Setisfactory	Satisfactory	Satisfactory
						-

Rating

CONTINUED FROM PAGE 37

UNITATION FROM THE ASSESSMENT OF THE ASSESSMENT

of.

Support: Pikides — Good. Technical
support: Very good. All X offers a oneparameter on the Picentic 2008. All
approximate on the Picentic 2008. All
actioned surrancy is available. Repair
are handled through the verdoor outbroadcast and the second of the
technicians was passed with house the matchnicians was passed with house the
province of the fastest systems around. A
typican VIAM, as EGA hourd and a monterior case 85.78. A.

AST Premium/386
 With the Premium/386, AST Research, inc. brings a solid performer into the high-end 386 market.

 Performance.

and 386 market.

Performance: The Premium/386
carned a very good score in CPU speed.
The system's hard disk sequential rating
was the fastest in this comparison, earning an excellent score. Hard-disk random

ing an entable toors, Berl-dike reduces in greaters of the properties.

Compatibility: Software.— Description and an entable of the properties.

Compatibility: Software.— Description and an entable of the properties of the prope

Documentation: Excellent. The manual includes installation and operating instructions for novices and experts. A troubleshooting section covers problems and solutions and describes on one error messages. There is a table of contents, an index and a glosary.

Lase of user: Good.

Setupe: Good. Diagnostics, cache, RAM disk and spooler software are bus-

died with the machine. AST also includes MS-DOS and extended mode memory (EMM) drivers, which allow EEM to be

(EMM) drivers, which allow Elent to be used as expanded memory specification. Workmanship: Very good. Overall design and layout are above average. The case and interior feature solid construc-tion, and we found no last-minute addi-

tions to the motherboard. Support Fulician—Good. Technical support —Good. A one-year warranty is collected on the Premium/388. Repairs is rehardled by AST and authorized desirate. So the support of the Premium/388. Repairs is rehardled by AST and suthorized desirates are available through Honeywell Bull, Inc. AST also offers a bulletin board section for on-line belge. AST maintains in technical support line, but calls are not toll free. The technicians we spillet to were knowledge.

edgeable and answered our questions ac-curately and promptly. Values: Good. Although an AST Pre-mium/366 with a 90M-byte hard disk, 4M bytes of RAM, an ECA board and a moni-tel costs \$10,775, it offers good speed, excellent documentation and solid sup-

 AT&T 6386E Work Group System AT&T's 6386E WGS is a towering giant with a fast 135M-byte hard drive. Opti-mized for the Unix operating system, the system supports up to 64M bytes of DALK Performance: The 6386E earned a very good score for CPU speed. The en-

device interface (ESDI) hard disk ear

an excellent score in sequential-access rate and a very good score in random ac-

rrite and a very good score is random access performance.

Compatibility. Software: — Very

Compatibility. — Section: The

SASSET and Gongonests of our hardware and software testing. AT&IT
claimed the sair rans the GSZ Software

Expanioability: Excellent. The SSSE Consens with It expansion since two 6-bit, five 16-bit and from 25-bit. The

23-bit sides are observant-compatible to the SSSE Consens with It expansion since two 6-bit, five 16-bit and from 25-bit. The

There are five 16-bit selfs to moving positions on the muchine. Documentation: Good. Documents

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The world is full of second guessers. People who question every decision you make. Fortunately they won't have much to question if you choose NEC.

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NFW RODUCTS

ing Computer.

The Maxar 286L is an IBM Personal imputer AT-compatible system that rereedly features an 8- to 12-MHs system inch and 512K bytes of on-board ranmarkable to 1M

The Maxar 30L computer was designed to provide users compatibility with the IBM Personal System/2 Models 25

and 30. The system was built around a 16-bit finate Corp. 8086 microprocessor and inches a full-speed focks and clendar. Inches a single-speed fock and clendar. The corp. 10 miles are speed to the single-speed focks and clendar in miles are speed and comes as 12-MHz clock speed and comes attached with 18 byte of on-board RAM and selectable wait states of serv or one. The Marze 2687 focus \$2.219. The Marze 2687 focus \$2

stor, Inc. in Providence, R.L. and tacube, Inc. in Peabody, Mass., have ed forces to combine neural networks a image-processing capabilities, a re-ted breakthrough for the visual in-

A hand-held Microsoft Corp. MS-DOS possional computer that features as Intel Corp. 80C88 microprocessor has been anounced by Micro Palm Computers,



caparamete to Z.ZM bytes. Removable memory modules are available in 128K-256K-, 512K- and 1M-byte configura-tions. The unit has a 20-char, by 8-ine LCD acrees with graphic capability. The PC/S000 costs \$3,295. Micro Pain Computers, 13773-500 [cot Bwd., Clearwater, Fiz. 34620. 813-530-6128]

A 25-MHz Intel Corp. 80386-based por table computer has been introduced by Mini-Micro Business Systems Corp Called the Ultraspeed 386 Portable

on configuration. An additional of random-access memory ms stalled on the memory expensi for a total of 16M bytes.

The Ultraspeed 386 Portal from \$5,695 to \$6,495, depe

print ridge characteristics called misus as the basis of fingerprint compariso Verification is made in approximate three seconds, and an audit trail facili

are also recorded.

The Ridge Reader Mint costs from \$1,300 to \$3,300 per entry point, depending on configuration.
Fingermatrix, 30 Virginia Road, North
White Plains, N.Y. 10603. 914-4285441.

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rmation Systems, Inc., Dept. 1610, 1414 Massachusetts Ave., Boxborough, MA 01719.

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tomers who thought they needed h CPUs put off upgrading, in some cases, for years.

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systems are tuned to deliver higher



You can also get a performance boost with our intelligent disk servers and a more intelligent clustering strategy. We'll even serve a vertical market

of one-with subsystems customdesigned to streamline your particular disk intensive application. Every bit of this is backed up

by the largest field engineering and

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Software applications packages

d Personal Com patible software that can report-edly transform research table ata into a perceptual map has seen introduced by Market Ac-

d scientific research data ana lysts, Stratmap 5.0 downloads data from ASCII or Lotus Develat Corp. files to create pre-



sentation graphics.
The software can summarize up to 10,000 numbers, 200 categories and 96 tables on one peres and 96 tables on one per-tual map. Each map may be smatically rotated, sized, ed and colored for graphics sentations. An IBM PC, PC XT, AT or compatible running Microsoft Corp. MS-DOS 2.1 or

tratump 5.0 costs \$495.

furket Action, Business haology Center, Bradley versity, Peoria, Ill. 61625.

agement Graphics, Inc. shanced its PC-Side family of presentation graphics soft-ware with the addition of several rks, the core of its PC-Slide

Stideworks is said to give us-ers the ability to design text, pie, bur, line, area and organizational charts in 255 colors.

The Presentation nt, which is now available, in-sites 24 extra typefaces and offers support for plotters, thermal printers and Adobe Sys-tems, Inc. Postacript

tems, inc. restrent.

The Imager module permits the production of 4,000 resolution aiddes in-house, and the Manager allows electrosically received slide jobs to reside unstatemed on one computer while

invoices.

Sideworks costs \$245, the
Presentation Assistant costs
\$346, the Imager costs \$800,
and the Manager costs \$1,605.

Management Graphics, 1450
Lodestar Road, Downsview,

du Computing, Inc. has ed Rollcall, a software chage for IBM Personal Com-ters and compatible systems at reportedly will provide inand telephone numbers. Rollcall is said to allow a use to keep track of up to 65,500 entries and can automatically insert a person's name and address to a word processed document. The package comes in either 5¼- or 3½-in, diskette formats.

Rolicali costs \$49.95. Quandu Computing, 12040 S. Reston 22091.703-264-8900

A C graphics library said to mim ic all Microsoft Corp. Quick C graphics functions on a Hewlettgraphics functions on a recommendated Co. serial plotter is available from Gamut Soft-

The QC-Plot library is actiated by selecting a device nu ber --- all function calls are iden-tical in form to Quick C calls but are prefixed with the letter k the vendor said. The product will

direct output to any HP 7400 ses serial plotter, or HP's HPGL script can be directed to a disk file for later printing or redisplay on the screen. Color mapping functions include 16 screen colors into one to eight pens. QC-Plot costs \$99. Gamut Software Develop-

ment, 9616 Northridge Court, Richmond, Va. 23235, 804-320-

A real-time financial data app cation that runs in Microsoft Corp.'s Windows 2.0 environment has been ann

Multex, Inc.
Called Multexquote, the
package reportedly uses the Microsoft Windows Dynamic Data Exchange protocol to give Mi-crosoft Excel users a direct link to market information. product's source of financial in

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family of Premium Connectivity products is designed with advanced features and top-of-the-industry speed and performance. Plus, compatibility with existing ar emerging industry standards

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of IRMA* over IBM, or IBM over IRMA - I it. AST-3270/CoaxII* offers hardware, API and keyboard compatibility with both standards.

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SDLC connections from your PC or PS/2, try AST 3270/SNA II* It offers: multiple sessions, 3287 printer support, keyboard macro facilities and

much more. The AST PC-to-Mainframe family also includes 3770, 3780, BSC and SNA Gateway products.

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Enhanced AST-5251/11 Plus" has captured the attention of the industry with its emphasis of Features like: seven concurrent display/print

telligence is Lotus Development Corp.'s Lotus Signal market in-formation service. A Microsoft Excel sheet linked to Multexote automatically receives the est data and recalculates any ociated graphics so analysis of rket conditions can immedi-

ately be seen by the uner.

An IBM or compatible machine based on Intel Corp.'a 80286 or 80386 chip with a

minimum of 640K bytes is re-quired; 1M byte or more is rec-ommended. Microsoft Windows 2.03 or higher or Microsoft Win-dows/386 2.03 is also necessary. Users will need Signal hardware and software and a market data service subscription

Multexquote costs \$350. Multex, 254 W. 31st St., New York, N.Y. 10001. 212-629-

oftware anguages

A programming language that reportedly combines procedural, declarative and data base pro-gramming structures into one

programming environment is now offered by Complete Log-ic Systems, Inc. Called Trilogy, the product

necessity of more than one environment when developing pro-cedural, logic and data base ap-plications. The unifying factor in

plications. The unifying factor in Trilogy is a language based on predicate calculus, the vendor said. It may be implemented on an IBM Personal Computer, PC XT, AT or compatible. A mini-mum of 512K bytes of random-

Trilogy costs \$99.95.
Complete Logic Systems,
741 Blueridge Ave., North Van-couver, B.C., Canada V7R 2J5.
604-986-3234.

ngush Knowledge Sys-ems, Inc. has released Jake, terms, Inc. has released Jake, an application-independent natu-ral language user interface. The product can reportedly be inter-faced to data base, graphics, edu-cational, control, utility and busi-rational, control, utility and busi-

nees programs.
The product consists of a library of routines that may be used with Microsoft Corp.'s C and Turbo C under Microsoft's Microsoft Corp.'s C and Turbo C under Microsoft and Microsoft and Microsoft and data structures, and the interface is said to adout we splitcation-specific, constituted on the control of t

Jake costs \$495. A der stration copy is available for \$10. English Knowledge Systems. Suite 22, 5525 Scotts Valley Drive, Scotts Valley, Calif. Drive, Scotts Valle 95066, 408-438-6922

Software utilities

Two microcomputer-based utili-sation and monitoring products are currently available from

Utilog I runs on the IBM Personal Computer, PC XT, AT and Personal System/2 as well as compatible systems. It was de-signed to track how often a com-puter is actually in use during a

given time span.

Utilog I can be installed with logon and logoff capabilities, and user names and passwords can also be created. Utilog I is available in a 5%-in. format and costs \$49.95.

Utilog II is a printed circuit board and program for monitor-ing computer use that can be in-stalled in IBM PC XTs, ATa, PS/2 Model 30s and compr PS/2 Model 30s and compati-bles. The monitor alternately provides the amount of time indi-vidually used by the printer, hey-board, disk and communications ports. A real-time clock is also readed. Utiling II costs \$195. Benta, 12708 E. 62nd Court, Kannas City, Mo. 64133. 816-353-3765.

The Ultimate Scan Utility for TSO

CSL-SuperScan + " pro vidas axtensive seerch/ Natural Language, Mass-Change, SPF 3.4 for TSO and SPF edit comends,

Families To Live Together.

uses inexpensive telephone wire (RJ11) and an on-board 80186 CPU for maximum performance. All of this for the PC and the PS/2, too.

ons. Looking for a great PC that's already configured for connectivity? AST offers the AST
Premium LAN Station* the AST Premium 5250 Station* and the AST Premium 3270 Station."

Based on a revolutionary, small-footprint 286 per-sonal computer, these Premium Connectivity Stations are powerhouses of desktop computing and terminal

We're Really A Family Business. When it comes to getting families to work together, AST has it all. And in an age when standards seem to exist only to be broken, AST stands committed to providing the very best connectivity products for your

ds, for today and to If you're interested in finding out

more about AST Data Connectivity ducts, call AST at (714) 863-9991,

☐Yes, send me ar ☐Yes, have an AS	AST product can T respresentative	alog, call me.	
Name			
Title			
Company			
Address	_		
City	State	Zip	
Send to: AST Rese Irvine, California!	arch, Inc. 2121 A 92714-4992, Att	ton Avenue E.M.C.	CW 7/38/90

Times Have Changed.

arseware program for Lotus Devel-nt Corp. 1-2-3 users is available the American Management As-tion (AMA).

ation (AMA).

Infanager's Guide to Financial
lyain Using 1-2-3 is a self-study
yram that teaches the user to build
analyze income statements, balance
ts and cash flow and checking ac-

The course includes a 1-2-3 manual of an instructional data disk and oper-tes on IBM Personal Computers or com-

computers running II ft Corp. a MS-DOS. e courseware costs \$165 for AMA members and \$175 for nonmembers. American Management Association, 135 W. 50th St., New York, N.Y. 10020. 518-891-5510

ficrovideo Learning Systems, a pro-lucer of video-based training programs or personal computer hardware and softwww.based training programs
r personal computer hardware and softire, has developed a two-part training
ogram for Wordperfect Corp.'s Wordrfect 5.

The Wordperfect 5 Learning Sys-ems consist of two modules: one for new users and one for more experienced users of the word processing software. The new-user modale includes coverage of the basic applications, such as writing, editing, printing and formatting.

tions, concentrating primarily on deaktop blishing capabilities. The Wordperfect 5 Leas

may be purchased together for \$795 or separately for \$495 each: Microvideo Learning Systems, 119 W. 22nd St., New York, N.Y. 10011. 800-

Data storage

Laserdrive Ltd. has expanded its prod-uct line with three optical disk drives for Apple Computer, Inc. Macistosh II, Digi-tal Equipment Corp. Microvax II and IBM Personal System/2 curricus meth-

ment the vendor's existing Model 810, which was designed for use with systes compatible with the IBM Personal Co puter, XT, AT and Intel Corp. 8038

All models connect to host systems vis-a small computer systems interface bus and can be integrated for use a magnetic disk storage derices. Each subsystem provides 510M bytes of storage on a 5¼-in-removable cartridge. The Model 850 for the Macinton in 50.956, the Model 850 for the Microwax II costs 93,495, and the Model 850 for the IBM F524 a 5595. Lateritive, 1101 Sept. Liver, Santa Clark, Call. 36064, 408-970-3800.

A tape storage subsystem designed for use with IBM Personal Computers, Per-sonal System/St and compatible systems has been amounced by Advanced Digi-al Information Corp. The backup system, dubbed the ADIC Model 4609-27, provides storage, back-tics. The unit can be physically consected to any of the microcomputers via a con-



ector and reportedly weighs less than y is also offering a

The company is also othering adapter its, which will allow the tape drive to ac-tes the host computer.

The ADIC Model 400-XP costs \$890;

the ADRU Model 400-XP costs \$890; adapter lists cost \$195. Advanced Digital Information, P.O. Box 2996, Redmond, Wash. 98073, 800-336-1233.

rinters/Plotters/ Peripherals

A mechanical mouse for use with the IBM A mechanical mouse for use with the IBM Personal Computer, PC XT, AT, Person-al System/2 and compatible systems is available from MSC Technologies, Inc. The Omnimouse is targeted at users who do not require the high degree of ac-curacy delivered by the company's more sophisticated PC mouse products.

The Omnimouse has a two-button case and 200 char./in. resolution. Support is offered for both mouse systems and Mi-crosoft Corn's Windows mouse proto-

Omnimouse costa \$89.
MSC Technologies, 2600 San Tomas
Exprey, Santa Clara, Calif. 95051. 408-968-0211.

Amdek Corp., a subsidiary of Wyse Technology, Inc., has added three micro-computer monitors and an enhanced IBM Video Graphics Array (VGA) card to its actining product line.

The vendor claims that its VGA Adapter 125 gives Amdek's high-end monitors 100% hardware compatibility.

Continued on page 45



The affordable scanner from Chinon. Chinon's unique new scanner could change for-

ever the way you use your computer. With OCR software, it scans, digitizes and inputs text into your computer so that you can edit it with almost any word processing software. That means no more retyping of documents. Just think how much time that could save you and your staff!

Desicion 2000 also sors images, so that you can input graphics too. Then you can input graphics too. Then you can manipulate these images with desictop publishing or graphics software.

Bet of all, Desicion 2000 is much lower priced than most effective scanners. That means it's finally costeffective to put a scanner on every PC user's desk.

DeskScan's unique overhead scanning desig means that you no longer have to separate pages from documents to feed them through a scanner. The document stays still while the scanning head "reads" the page. And the unit automatically adjusts for room lighting levels. Scanners aren't just for desktop publishing are

more. DeskScan 2000 becomes an economical FAX, with the simple addition of an inexpensive add-in board. Chinon sells this exciting option and others in package comhardware and softwar so that you have an affordable way of getting started with your scanner right away

So see for yourself what DeskScan 2000 can do for you. Call TOLL-FREE 1-800-441-0222 TODAY for the DeskScan 2000 dealer nearest you.

CHINON

Chinon America, Inc., 660 Maple Ave., Torrance, CA 90503

Continued from page 44 with VGA standards, as well as software compatibility with earlier IBM Colo Graphics Adapter, Enhanced Graphic Adapter and Hercules Computer Tech

offigumen notificers assured to the computer Technique and firectales Computer Techniques and the computer Techniques and the computation and first Corp. 80388-based DOS microcomputers. Monitor (252).

The 14-th Annels and susted for basiness graphical and desktop publishing supplications. Used in conjunction with the VOA Adapter 12 care, the product reportedly support all VOA models, including the computer of playing 256 colors on a screen si

The Smartscan multifrequency more is said to offer 15- to 35-KHz horiz sion is said to differ 13- to 35-KHs horison-tal scan frequency and supports all VGA functions. It has a maximum of 800- by 600-pixel resolution and supports Micro-soft Corp. Windows, Digital Research, linc. Gem and Autodesk, linc. Autocad ap-

A monochromatic monitor, the Amdek Monitor/201A, is available to ad-dress the needs of the low-end market. The 12-in. unit features an amber display and is appropriate for word proces spreadsheets and other applications.

The 201A costs \$129. Suggested re-prices for the Amdek Monitor/632 d Smartscan are \$595 and \$795, re-ectively. Pricing for the VGA Adapter 132 has not yet been determined. Amdek, 1901 Zanker Road, San Jose, Calif. 95112. 408-436-8570.

A dual-page display screen for the Apple Computer, Inc. Macistrons has been intro-tally a second of the Apple Computer, Inc. Macistron has been intro-The monitor reportedly persuits the user to view two complete pages when writing, editing or preparing a layout. Called Nutames § 19, the unit provides produced to the computer of the computer of the smootal format. A proprietary video interfa-ce is included, which provides upon one capability from the Macistron SS to the Macistron II. While retaining the original

The Nutmeg 19 costs \$1,899. Nutmeg Systems, 25 South Ave., N maan, Cosn. 06840, 203-966-3226.

A hand-held image scanner for use with the IBM Personal Computer AT and com-patibles has been announced by Mitsubi-shi Electronics America, Inc.

The ME 30 is causer was developed for desitrop publishing and optical character recognition application and in a desired problem of the control of the contr

an automatic paper feeder is available to use with the product.

The MH 216 costs \$995. The option paper feeder costs \$250.

Mitsubishi Electronics, 991 Knox St Torrance, Calif. 90502. 213-515-3993.

achines, Inc. has announced price ctions on its line of large-screen

monochrome monitors.

Effective immediately, the suggested retail price for The Big Picture for Apple Computer, Inc.'s Macintosh 512, Mac

Plus and Mac SE is \$1,695, and the Big Picture for the Mar II is \$1,795. The monitor offers a 1,024- by 806-pizel desktop. Each is shipped as a com-plete system that includes monitor, video controller card, cables and software. E-Machines, 9305 S.W. Gemini Drive, Beaverton, Ore. 97005. 503-644-6699.

Board-level devices

A display controller plug-in board capable of three-dimensional computer-sided design on an IBM Personal Computer AT is out from Nth Graphics Ltd.

The Nth 3D Engine combines parallel processing architecture, bierarchical management of a graphica display list and

Standard models include a graphics tool list, 2M bytes of display-list random-access memory, 1,024- by 768-pixel resolution and a selection of 256 colors from a palette of 4,096.

The Nth 3D Engine costs from

\$5,995. Nth Graphics, 1807-C W. Braker Lane, Austin, Texas. 78758. 800-624-7552.

The Complete PC, Inc. has announced the Cfex/9600 board, a hardware and The product reportedly works in back-round, allowing it to send and receive coimiles without interrupting personal sputer programs. Scanner support in-ies machines from Hewiett-Packard

Co., Microtek, Inc. and Dest Corp.
An on-board scanner port is available
for The Complete Hand Scanner, a
hand-held device for entering logos, sig-

The Cfaz/9600 cots \$599. The Complete Hand Scanner costs \$199.

The Complete PC, E21 Cottonwood Drive, Milpitas, Calif. 95035. 408-434-

A series of Intel Corp. 80286-based add-in cards for IBM and compatible personal computers have been amounced by Our Business Machines, Inc. The OA-Link 286 product line was designed to provide IBM Personal Computer AT capabilities and incorporates a , Continued on page 48



A Direct Channel Attached: Protocol Converter/Controller

HYDRA SNA offers full SNA support allo ASCII terminals, PCs, and printers to be

HYDRA SNA provides 3270-by HYDRA SNA provides 3270-type emultion to ASCII terminals and PCs, supports many popular ASCII terminals, and offers key mapping facilities allowing additional terminal to be supported. HYDRA SNA supports local and remote applications and provides password, call-back, and positive logoil. ling performance for connecting devices as flexibility that incorporates quick set up

HYDRA SNA is available in 6-port increments from 16 to 64-ports. The design features easy expansion enabling models to be upgraded as total of 64-ports. HYDRA SNA attaches to 18 and competible 360/370/300X/4300 mainframe

For full details Call 800-55-HYDRA. in mis cell (714) 770-2263.

* JDS MICROPROCESSING

What computer users can learn from the Chinese warlords.

When the computer industry was first born, its propagators set up individual fieldoms, much like the ancient Chinese warlords.

Each company staked its claim in different ways, but each ensured that its customers would remain indentured.

How? Because Company X

computers worked only with other Company X computers. Because Company Ycomputers communicated only with other computers from the same vendor. And because the technology to open up these barriers was either too complicated or too expensive.

But like the reign of the Chinese warlords, the computer monopoly also is coming to an end at the hands of progress.

Today's users are demanding openness. They want to move data easily among dissimilar computer systems, to take an application from one computer and run it on another. They want to choose products based on what they need and how well it serves their



purposes, not because it's the only option.

This openness will fundamentally change the computer industry. And because so much is riding on our ability to meet this challenge, it is crucial that it be met intelligently, aggressively.

Perhaps there is something to learn from the fate of the Chinese warlords

The information processing industry is feuding over two sets of standards for openness. This is a disgrace.

The need for openness and user interest in it should come before the selfish interests of vendors trying to protect their schemes.

The issue isn't whether AT&T's UNIX prevails over the newly formed Open Software Foundation's.

The issue is that open systems are not a figment of some consultant's imagination. They are a fact.

The issue is that even users of proprietary systems benefit from open systems because of greater access to new and more plentiful applications. The issue is that this is a great opportunity for the computer industry to band together to encourage progress and shape it for the greater good.

And finally, the fact is that unless we all do it together, history proves how disunity is the quickest formula for failure.

If you think a unified UNIX' standard is important, tell your computer company. There's no time to lose and everything to gain.

. ISYS

The power of ²

Continued from page 45 CPU, random-access memory and video technology onto one board. The product is packaged in an inter

ace box for connection to a monitor, keyface box for connection to a monitor, nep-board and proprietary operating system. Up to 200 feet of cabling are included. All systems are Microsoft Corp. MS-DOS and IBM PC-DOS 3.3 compatible.

and IBM PC-DOS 3.3 compatible.
The OA-Link 286 product line starts at less than \$1,500. IBM Enhanced Graphics Adapter functions are optional.
Our Buniness Machines, 12901 Ramons Bred., Irwindale, Calif. 91705. 800-443-1435 or 818-337-9614 (Calif.).

An Intel Corp. 80386-based IBM Person-al Computer AT cache board design and documentation package has been an-

nounced by Austek Microsystems Proprietary, Inc. The product is for system designers of engineering worksta tions, network servers and other high end personal computer systems

Called Cobra, the board is said to in-corporate 32K bytes of cache memory using a proprietary controller chip. The demg a proprietary controller chip. The de-sign lot includes a technical reference manual, logic schematics and programma-ble array logic equations. Cobra is de-signed to maintain compatibility with the AT architecture and can use peripheral expansion cards designed to operate in

Cobra costs \$3,900. Austek Microsystems, Suite 1020, 444 Castro St., Mountain View, Calif. 94041, 415-960-1315

Lotus Development Corp. has report-edly added 30 features to its Signal soft-ware for financial market tracking and

mation service was designed to provide independent investors with real-time, up to-the-second market inform ase 2.0 incorporates 60 additional indexes, bringing the total number to 80, and the program includes comprehensive coverage of the AMEX and NASDAQ stock exchange indexes.
Additional enhancem

include support of up to 1,250 stock sym-bols. Lotus uses FM sideband technology scribers in 14 U.S. metropolitan areas Signal users may upgrade to Signal 2.0 for a \$55 handling charge. Signal soft-ware and the FM receiver cost \$595. The monthly Lotus subscription fee is \$80 with a supplemental monthly fee for each

Lotus, 55 Cambridge Pkwy., Cam-bridge, Mass, 02142, 800-367-4670.

Users of Decision Graphics, Inc.'s Di-rectory of Micro Engineering and Software/Services can now use a data base tool that will help locate computaided design and engineering packages.

Called the Software Locater, the

personal computer-computible data base serves as an intelligent index to the direcory service. The product uses an interactive search technique to aid users in locat-ing packages and provides a brief description of each selected package. A full, detailed description is then referenced in the directory, which reportedly lists more than 800 software descriptions

lists more than 900 software occurpauses covering 27 application areas.

The Directory of Micro Engineering Software/Services costs \$189 per year. The Software Locator is available for a one-time fee of \$65 with the purchase of a one-year directory subscription or is included at no extra charge with a two-year

Decision Graphics, Suite 652, 555 Sparkman Drive, Huntsville, Ala. 35816.

Auxiliary equipment

Two data security products for IBM Personal Computers and compatibles and IBM Personal System/2s have been intro-duced by Qualtec Data Products, Inc. PS/2-Lok is a metal locking device

designed to control access to the power switch of the PS/2 Model 50. The lock requires a key to turn system power on or off. The product is secured to the PC with a retainer plate and can be installed with-out modifying the computer cabinet. An onal keying feature provides security officers and corporate management with overall access control. PS/2-Lok costs \$49.95.

File-Guard is a software program that reportedly allows the user to select and lock confidential files. The package runs on most Microsoft Corp. MS-DOSse end is

compatible operating systems as available on 5%- or 3%-in, diskettes. File-Guard costs \$99. Qualter Data Products, 1400 Coleman Are., Santa Clara, Calif. 95050. 408-496-6184.

A product that can reportedly speed up the math coprocessor on an IBM Personal Computer AT has been introduced by Symbiotic Technologies.

The vendor claimed that Co-Clock allows the coprocessor to run independe by of the motherboard and can sub

quently improve the quently improve the speed and performance of any program that uses the Intel Corp. 80287 chip. Co-Clock is installed under the co-processor and takes up 4 in, of space. No expansion sick is required. The product is composed of a four-lay-er glass epoxy board that uses a custom-integrated circuit. It is available in both 10- and 12-MHz speed

Co-Clock costs \$89.95. Symbiotic Technologies, Carisbad Re-arch Center, 2380-D Camino Vida Ro-e, Carisbad, Calif. 92009. 619-431-



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Why Realia? Simple. Because we can help the best stay the best. Realia COBOL is the fastest, most advanced application development tool available to bring the power of the mainframe right to your PC. You'll start saving time, money, and resources, whether you're maintaining an old system or creating a new one.

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Rating

FROM PAGE 38 er's guide and a video display unual. Both books are side shed and include an index and a table of contents. The installa-

ion instructions are easy to fol-Ease of use: Good. Setup: Satisfactory. AT&T undles DOS, diagnostic and set-

up software, a utility to change he speed of the microprocessor and EGA drivers with its system. Setting up the 6386E WGS took slightly longer than on most oth-er machines that were tested. probably because you have to re-move a cover before you can get to the serial and parallel ports as well as keyboard and monitor

Workmanship: Very good. The 6386E WGS motherboard had no last-minute wiring or component additions. Layout and mechanical design surp that of many other systems. The case is huge (24-in. high, 17-in. to and 9-in, wide), well-built

Support: Policies — Satisfactory. Technical support — Very good. AT&T offers a oneyear warranty on the 6386E WGS. Repairs are handled by the vendor or authorized dealers. On-site repair service and extended warranties are available. Technical support is available 24 hours a day, seven days a week on a toll-free line. AT&T reuires users to provide the sys-em's serial number before they

Value: Good, At \$12,887 with a 135M-byte hard disk, 4M bytes of RAM, an EGA board and a monitor, the AT&T system was the most expensive unit tested. For the mosey, you get a large drive, high-end speed scores and excellent expandabil-

 IBM PS/2 Model 80-111
 The IBM name traditionally means a well-built and solid performing system, and it seems the 20-MHz Personal System/2 del 80-111 is no exception to

formance: The Model so clocked a very good CPU speed. The system's 115M-byte ESDI hard disk earned very good scores in hard-disk sequential

scores in naro-use sequencias and random access.

Compatibility: Software — Poor.
All the programs in our software test suite ran fine on the Model 80. Because of the Micro Channel architecture, however, we

were unable to run our hardware Expandability: Very good. The lock on the Model 80 secares the case but not the key-board. There are eight Micro

el expansion slots on the

good. Documentation for the Model 80 includes clear step-by-step instructions for novices. The diagrams are clear and match the hardware. A troubleshooting section covers symptoms and solutions along with on-line error messages. Informa-tion is also included for memory,

ard disk, coprocessor and vid ard installation. Ease of use: Good.

Setup: Very good. Setup, di-agnostics and DOS 3.3 are in-cluded with each system. The Model 80 was virtually a breeze

to set up.

Workmanship: Very good.

The motherboard-on the Model
80 was perfectly clean. All the
components are surface mounted for an impressive looking layout. The external case is sturdy

Support: Policies — Satisfactory. Technical support — Good. IBM offers a one-year warranty on the Model 80. Re-

warranty on the monet ov. ne-pairs are handled through autho-rated dealers. There are no op-tional support plans offered, but an extended warranty is avail-able to users. Technical support is available only through authorized dealers. We called two ceived accurate and helpful sup

Value: Satisfactory, For its Value: Satisfactory. For its \$11,590 price tag, the 20-MHz PS/2 Model 80-111, which features a 115M-byte hard difk, 2M bytes of RAM, a VGA board and an IBM 8512 monitor, offers fairly standard performance. Like the HP Vectra, the Model 80's large hard disk improves its



TI's new TravelMate" LT220. It's the closest thing to carrying a VAX" in your briefcase.

the LT220 lap-top terminal — the next best thing to being there when you need remote access to your company's VAX.
The LT220 provides full VT220

emulation in a 4.8-lb. package, with our sacrificing functionality. It featur a 25-line screen that's easy to read. It even has a full-function keyboard like the one on a VT220.

1,200 or 2,400 bps through one of its optional internal moderns. For hard copy, just slide the LT/220 into one of its ional cradles to add an ink-jet or ermal printer. d-sized memory cards

let you create, update and store files. They're also handy for programming the LT220 to your specific application. Like its Silent 700" predecessors, the LT220 sets new standards for portabil-ity, durability and reliability. All of which makes it the perfect tool for any

one whole ever wished for a VAX in their briefcase. In short, this may be the best little terminal in the world. So go ahead. Take the first step toward improving your productivity today. Call Texas Instruments for mon information or to arrange a demonstra-tion of the LT220. Phone toll-free,



IBM dot matrix printer goes to work

BY SALLY CUSACK

IBM recently amounced a doc matrix printer designed for use in offices that require a variety of contrast options, including draft,

Dubbed the Quickwriter 10 char./in. and a letter-quality Printer, the wide-carriage, 24-wire dot matrix device was de-char./sec. at 10 char./in. Printer, the wide-carriage, 24-wire dot matrix device was de-scribed by IBM as a medium-duty printer with letter-quality print that is comparable to the IBM Selectric III typewriter. The printer has a reported

draft speed of 330 char./sec. at

char./sec. at 10 char./sm.
With the optional Selectric
font, the printer provides 55 to
60 char./sec. According to Roger Savitt, a senior information
representative at IBM, the
Quickwriter is the next step up

and envelope options make the product suitable for one-printer offices that require multiple printing capabilities.

Paner handling options inper handling options in-both a single- and a dual-

dual-drawer configuration con-nists of one drawer for letter-head and one drawer for regular bond paper. The design allows documents to feed out sequen-tially; in a top, bottom and then envelope mode, which prints en-

envelopes automatically.

The past, the 24-wire Proprotection could be all the past,
past of color beat descriptions of color
past of color beat descriptions of color
past descripti

SCIENCE / SCOPE

A new primated wiring board (PWP) significantly reduces the manufacturing copy of large backplosms, or monthrostents, while linguising pro-backplosms, and midsality of the conquients they belt programs. Developed by Hughes Aircraft Company for military compants applications, the 18-byte Contains (2006 lower with that the cert is designed or replace, and may be the most complex manufacturing the contained of the contrained of the contrained

tographs that above flustures one three-choosaseds the width of a human hair have been obtained upth the limit observed in militariarization technology. The photographs were schlosed with a the graph of the control of the control

A new technique for interconnecting high leaf-count integrand circuit (C) chips to a substrate or package is being developed as a software and furriowes peckage in a single piece of equipment. Collect single-point lips, Automated Resing (CUL), he Higher years me as excised pack projectly formatted in 35-cm or 78-cm size, on which a specific IC pattern is existed out. A polyimide film in some in single-point lips, and approved the holest sent for the interconnects, Single-point VID conditions the special single-point Vingo-extension flowing with time bounding a behing to senting a variety writery of chip shapers, including the latest very large-point integrand chips.

As influend sensor options for the loist services: V-22 Operay sirrorsh will help cross an edges and text in set transcent self-under periods of power volability. The Influent Expection Sign Crops, evenipped by Hughest, senses small differences in radiated host and provides a TV-tille image of the servonating area. The V-22, the first of the new till-voor aircraft for the LS, Armed Forces, is able to take for fine lead little as helicoptes; but fly like a place. Hughes will start flight testing the IDS in early 1969, with flight test support containing through Post.

Highest Octoord Systems Group is applying its simpace management experience to the exciting dualingum of workfords air traffic control. These systems will be designed to sensor service 2A hours a local sensor service. The many callanges include design and development of the control inside via local sens networks. The many callanges include design and development of the control inside an apport advanced display and size-machine; interface technology, and using matille technologies for three ACC applications. Delaple design the est generation of air unific control systems, send your resume to Rughest Ground Systems Group, Employment Dept. S3, PC. Box 4278, Pellerton, CA 92634. Eggal apportunity supplecy. U.S. citization proquent.

HUGHES

Cobol FROM PAGE 35

our emphasis on C or Besic but : renewed emphasis on Cobol,' said Greg Lobdell, group prod uct manager at Microsoft's lan guages group. Lobdell indder that Microsoft had been co-demmed for patting Cobol devel-opment on the back burner. But no more.

no more. Microsoft has been upgradir its Cobol once every year at half or so and saw its technolog half or so and saw its technology surpassed by a variety of ven-dorn. Ester Micro Focus. "We looked around at the technology, and Micro Focus was as good as any we found," Lobdell said.

According to Microsoft, the advent of Intel Corp. 80386-based computers, the OS/2.

ge-memory operating system d better versions of Cobol will ad to a boom in the market. ad most users will be MIS/DP

Nervaer fearst While some Microsoft Cohol users may be concerned about migrating to the Micro Focus product, Lobdell and not to worry. "That is one reason we went for hidden cases, which may be for a surface of the control of the c

Under terms of the agree-ment, Microsoft will market and related the Micro Focus Cobol for MS-DOS and OS/2, and Mifor MS-DOS and OS/2, and Mis-cro Focus will sell add-on tools that support mainframe necessi-ties such as IBM's CICS. The two firms will also share technology, with Micro Focus providing the core Cools and Mis-crosoft licking in tools such as its editor, linker and, eventually,

Barnev

In order for these firms to succeed, hey need to act like PC companies and

ston. After developing and marketing good, solid, well-priced systems, these or ganisations can then go on to add features that make the micros a better fit with the host environment, much like IBM will do with OS/2 Extended Edition.

otus vs. The Boston Globe. Lotus as gotten used to facing battles in the arketplace arena. Now the company is ng with a large press org

Well.

The Boston Globe has irked Lotus chairman Jim Manzi with its less than nic treatment of the company. The last straw was at Lotus Week, when a Globe editor misinterpreted Mann's "con sion" that he had hoped to have an-nounced the shipment of 1-2-3 Rele

3.0.

The Globe headline dubbed the confession as another Lotus delay, which it wasn't, and o'ji min the troot. The word west out. No communications with the Globe except what Lotus is legality obliged to do.

Now both organizations are going around wasning eag on their faces. Lotus its postile coverage of the common with its postile coverage of the common with

its negative coverage of the company with cartoons and a scathing column that rtoons and a scathing column that ent so far as to call Lotus "rotten at the

But the Globe doesn't look too hot ei er, because to astute observers, muci of the negative coverage appears to be in response to the tension with the Globe ms that suddenly

emerged at Lotus.
Fortunately, both organisations sees to have shared a washcloth to wipe the egg off, and many of the problems have

Language lawsuit lament? Now that Oracle has amounced its intention to ship a close of Ashton-Tate's Dhase and ril-lions of companies are closing Adobe's

estacript page description language, one believe it is only a matter of time

peter language.

We hope it never comes to that, but if it does, watch out. Like suits over interfaces, these babies outed spiral out of control, because nobody really knows who developed these languages in the

PC bigots discover the mid-range. I you've looking for some good yeak, just take a look at look the first mid-patient leaken to the control of the control o

Ashton-Tate and third parties — hatred as usual. Ashton-Tate has nev-er really gotten along with Dhuse after-market firms. And this situation shows no

tigns of improving.

The latest skirmish involves competive conferences. Ashton-Tate is hold a Dosse conference to which no third a Donse conference to which no third parties have been invited. Donse thirv parties are also holding a conference which Ashton-Tate has declined to at

Damm DRAM. The shortage of memory chips has even hit Microsoft, which needs a slew of boards for compatibility

testing of software.

Greg Lobdell, product manager at
Microsoft's languages group, found out
the hard way that the abortage is indee

real. It seems Lobdell was out of town on business, as product managers often are. When he returned to work, he discovered that some Microsoft employees had gone into his office, popped the case off his PC and ripped out his Cheetah board. That's what locks are for, Greg.

ovide 24 Hour CICS Service Provide 24 Nour Crt.s Service
IBM gave dynamic allocation to CICS... but you need Netec's
CAFC to make non-stop CICS a reality. CAFC allows a single
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Symantec tries new orchards. eyes Apple

BY JULIE PITTA

CUPERTINO, Call. — Symmetre Curp.

International content of two in scope crossing of the personal computer market with the introduction of the were or enhanced serious products for Appie Computer, Inc.'s Machinian. The products are all stated on Machinian and Computer are all stated presented in the Computer of the C CUPERTINO, Calif. - Symantec Corp.

More II, which costs \$395, allows Mac-sers to create deaktop presentations, it chades word processing, drawing and atthing capabilities. The product is thedaled to be available in the third quar-r of this year. Inhox 3.0 is an enhancement of an ex-

isting E-mail package for the Maci It adds message center archite adds message center architecture, ich allows it to run on Mac file servers. including Tops and Appleshare. The product also allows connections to PC environ

The price of Inbox 3.0 has not be

orth quarter. Think's Lightspeed-C 3.0 is a C de-Think's Lightspeed C. 3.0 is a C devel-opment environment for the Macintonia that adds a Mac-style isource-level debug-er, procompile headers, an in-line Ma-terial Comp. 68881 must corposessor and apport for Motorchia's 68920 micro-processor. Lightspeed C. 3.0 is currently hipping at an intraductury price of \$175. \$1,000 micro \$1,000 mic

ter of this year at an introductory pric

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Just Enough Pascal is a learning tool de signed to accompany Lightspend Pasca 2.0 in teaching users to build an applica

2.0 in teaching users to bond in a titon in that environment, linetractions on-line and interactive.

The product's price is \$75; shipmen scheduled for the third quarter.

Symantec, a developer of application of the computation, first entered the has took market with the acquisition of Linetraction and the contraction of the contracti

The company increased its press with the purchase of Think Technolos shortly afterward. Company officials clined to project sales levels for the fit



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NETWORKING



Micro Channel hits modems

Companies ignore user ambivalence, bet on need for IBM architecture

BY JAMES DALY

SNA skills IBM's high-speed Micro Ch fuel buy-outs big splash when it arrived on high-end Personal System/2 high-end Persuan models last year, and the ensuing wake has vendors scrambling to internal modems de-

duce internal modem ed to tap the greater ca ities of the new design. tecture (SNA) y. Now there is big de-for non-IBM companie SNA expertise that can

Firms such as U.S. Robotics. ols such as LU6.2. SNA software develops

Firms such as U.S. Robotica, Inc., Hayes Microcomputer Products, Inc., Telebit Corp., Racai-Vadic, Ven-Tel, Inc., Par-sdyne Corp., Ark Electronic Products, Inc. and London-based Dataflex Design Ltd. have al-ready headed into the waters of Micro Channel compatibility in ns, Inc. (CSI), Rabbit re, Softswitch and Orion ors out to new others.

y, have things changed.
y, SNA developers have not secome more visible in serger- and acquisitiony communications envi-

We think it will be a signifi-

cant market. That's why we're participating," said Cossie Bridgham, a spokeswoman for Atlanta-based Hayes, whose 2,400 bit/sec. Smartmodem 2400P is alated to be available this mostly.

cro Channel architecture was driven by the need to make its machines run faster and more ef-

seem to be leading the way. Us-

IBM airs additions to SAA

BY GERARD BIDAL and AMIEL KORNEL

LA HULPE, Belgium — IB revealed further details earl this month of its blueprint i

Data View



Mergers fuel more service

g that the market was emium add-on products my of the new modems

Many of the new modems are also attempting to ease their acceptance by offering CCITT V.22, V.22bis and Bell 103/212A compatibility, which constitute the majority of modems both in the U.S. and

Users picket
Since external modems can
serve a wide variety of computer
architectures because they conmode through a standardised
port, most modem makers will
not be excluded from the Micro
Channel-equipped market. However, sales may be lost to end users who loathe the cables and
desit space required for external
modesis.

BY KATHY CHIN LEONG

Networking vendors that have merged with larger companies during the last year recently is-sued guarantees to supply in-creased service and support to their customers. Among the

or (DCA) leat A

Advice on Integrating IBM, DEC, HP, & Unisys Networks



ent, they have suddenly be hot properties. virtually back-to-back s, Orion and CSI changed s. The latter was pur-d by 3Com, and Orion was ht by its biggest client, Ap-

- ndor's network arch

Call Forest Computer for your complimentary copy of this informative report. (517) 349-4700



Linking TCP/IP to OSI

BY ELISABETH HORWITT

As the ISO's Open Systems Interconnect (OSI) protocols at last show signs of ma-turing. Transmission Control Protocol/ Internet Protocol (TCP/IP) installations are increasingly looking to vendors for a

Such companies want their existing TCP/IP installations to be able to talk to the new OSI networks during the transi-

tion stage. Vendors have only just begun to come out with gateways that translate between the two protocols at the application level the two protocols at the application level —for example, between OSI's electronic-mail protocol, X.400, and TCP/IP's Sim-ple Mail Transfer Protocol (SMTP). The following is a list of some current products and upcoming introductions in

promasa this area: • Sun Microsystems, Inc. in Mountain • Sun Microsystems, Inc. • In Mountain • In M

SAA

CONTINUED FROM PAGE 53

ating systems — OS/2, OS/400, VM and MVS.

ities for developing of or SAA. For these app

ry," Waterier claimed. The re suid be used not only in conjunc \$2 but also on the recently an oplication System/400 mid-ran products and on the Person

whoever and other senior took officials at the conference emphasized that both Unix and Open Systems Interconnect communications protocols will be inte-grated into SAA. Wheeler specified that in the future, AIX workstations will be able to connect to the AS/400, an SAA

where to commerce to the AS/400, an SAA system.

Although he did not specify release sten for the new features, Wheeler pro-cited that 65% to 70% of all the ele-ents of the unified architecture will be in size by 1989, with the rest being filled in 1 1989.

In a related development, Ellen Han-ck, vice-president and general manager IBM's Communications Systems Divi-

functions on an FTAM system.

- Sydney Development Corp. in Van-couver, B.C., said it provides gateways to systems running TCP/IP's SMTP, as an option on its Messenger 400 X.400 elec-tronic mail system for Unix systems. The

tronic mail system for Unix systems. In perioduct reportedly allows users to implement X.400 on top of either a TCP/IP or an OSI network. Sydney said it plans to provide a gateway between OSTs FTAM to TCP/IP's File Transfer Protocol (FTP). on a contractual basis initially, with a pos-sible commercial product out in the fu-

geies said it plans to release a gateway be-tween SMTP and X.400 by year's end. A gateway between TCP/IP's FTP and FTAM is stated for release in mid-1989. Also planned is a product in late 1989 that would allow TCP/IP applications to run our CSI and the state of t

would allow TCP/IP apprications to run over OSI networks.

• Wollongong Group, Inc., located in Palo Alto, Calif., has announced — but not yet delivered — a bridge that sup-ports OSI and TCP/IP. It also plans a gateway between TCP/IP and OSI appli-cations at an undisclosed time, a company spokesman said.

• Retix Corp. in Santa Monica, Calif., said it is planning a full introduction for Retirmani 400, an X.400-based E-mail system said to allow IBM Personal Computers on a TCP/IP network to communicate using X.400. The product or an intelligent board that converts one PC into a server that permits other PCs on the network to either exchange E-mail or send it to a long-distance X-400 E-mail service, according to Retix Pres Andy de Mari.

A second product, slated to be an-nounced several months later, will imple-ment FTAM on TCP/IP. Retix also plans nunce in 1989 a TCP/IP-to-OSI gateway incorporating full sets of both

• Ungermann-Bass, Inc., located in Santa Cara, Calif., said it will introduce a transport-level gateway in the fourth quarter that will enable the same networking application to run on b



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AIX is a standard UNIX with all the flexibility and portability that initially made

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Study: EDI beneficial for users, not vendors

BY PATRICIA KEEFE

CAMBRIDGE, Mass. — The trend to-ward automated trading, or electronic data interchange (EDI), will be a boon for users but only a modest money-maker for network and translation software vendors because of a price war, according to a re-

The report, by Forrester Research, Inc., a market research firm located here, is based on interviews with 26 EDI users, 11 of which had full-fledged EDI systems. The other 15 were in pilot stages. As

Of those in Of those interviewed, 66% are using EDI now, 18% said, they plan to imple-ment EDI within the next three years, and another 16% reported no specific plans. A mainframe approach to EDI is used by 84% of current users. Some of

only 7% rely on minis. Based on reactions from these 26 sites, Forrester is estimating that only half of the Fortune 1,000 transmits docu-ments electronically with their trading

est or require their suppliers to trans-

"The firms that benefit from EDI are se who will drive the market by per-ding their suppliers to use it," the revertheless, EDI network services rs will find themselves without de-

works with their translation software But smart users are end-running that tac tic by buying translators for

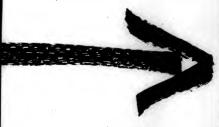
Not only will EDI profits ger dest, but the report wa

looking to EJI to sell hisroware, views with Fortune 1,000 users int that they will not buy specific sy based on EDI capabilities alone. "System vendors will have to of tegration of EDI with their office sy

Mergers

CONTINUED FROM PAGE 53

wide "logistic centers," carry spare Tandem com Price cuts are anoth some recently merged compan offer. At the newly expanded 30 can get both 3Com LAN and Br can get both 3 com. LAN and Bris area network products at discos to 20%. "We are one consolidate ny now," said John Marman, w dent of sales and maffeeting. At Lapinig said the company is goin LAN prices to be more competiti. "The whole industry is movin consolidation, and that haile gor to users." observed neabout



this environment such a hit with users, system builders and application developers. But IBM has taken it further, adding special enhancements that make AIX the one system to build on.

IBM enhancements include Token-Ring Support, IBM Distributed Services' transparent program and file access, supercomputing capabilities via the IBM 3090 Vector Facility, bridges to other IBM and non-IBM environments, and more. It's the best of all worlds: access to AIX and UNIX applications, unparalleled IBM

system flexibility, and single-source service and support. With IBM's AIX, it's not just a question of where you fit in, but of how far it will

take you.

IBM. The Bigger Picture

Fleig

illustrate the importance small-system vendors are now placing on communica

tions compatibility with SNA.

A number of factors have caused
SNA's recent move into the communications limelight. The first is IBM. With
the advant of such restriction is Advanced.

(APPC) and Advanced Peer-to-Peer Networking, IBM has begun to make SNA more practical for small-systems en vironments. While important functions are still missing, IBM has begun to let

tions previously monopolized by the host A second major factor is the presence of OS/2 Extended Edition's Communications Manager. When fully implemented by IBM, Communications Manager will have much more in common with SNA networks than it will with standard LAN

As developers look toward writing orograms for OS/2 Extended Edition, it

Modems

does not bother some manufact

"We've done the analysis and engineering preliminaries in terms of how to do it and what it will look like, but we've put our resources elsewhere," said Steven Mullian, product line manager for an alog modens at General Dutacom Industries, Inc. in Middlebury, Conn. "The

But it will be, according to others, wit are confident that where BM goes, of ers are sure to follow. "If Commodore h put out the PS/Z, I don't kink we'd I worrying about Micro Chamel-comps be modems," said Eric Arbonn, a da communications snalyst at Internation Resource Development. "But since Bilhas developped it, I'd consider it a prett safe bet."

Still, not everyone is convinced they wast to join the fray. "The competition in this new market is already beginning to heat up," said Bill Cormier, an applications on gineer in the sales support group at Razal-Vadic, which produces a 1,200 bit/wee. Micro Channel-compatible modern that Bild resells under its own label. "So,

Data communications products mixers have also exhibited a listoric reluctance to embrace new standards. "Modern manufacturers must continually asis themselves if the standards are going to evolve with the speed that is being professed," and Barry Marks, vice-president consultant services at Eastern Management Group in Parnippany, N.J. "Foxinstance, why did IBM develop something instance, why did IBM develop something

does it fit in?".

Despite the controversy, it seems certain that the capabilities of the Micro Channel are going to take data communications in directions that will be around long after the shouting dies down.

pertise is required to create applicatithat operate effectively in that enviroment. This fact alone makes companithat understand the ins and outs of APPC a lot more valuable.

Complex lini

The third factor is the need to meet more sophisticated networking requirements. Some small and medium-size companies may still need a PC Network-like solution, but MIS departments in large corporations more often need to lini networks to each other and to main-frames. All too often, that requires some

networks to each other and to manframes. All too often, that requires some knowledge of SNA. 3Com, with its new development group supporting both its Bridge Communications division and now CSI, seems

particularly well positioned to respond to increasing demands for more sophisticated networking products. The company now has products that span the requirements for simple LAN configurations to larrie interconnected network environ-

ments under SNA.
Apple seems to be out to prove that it is more than a personal computer vendor Of course, the company has made that promise since October 1985, when John Sculley committed the company to full interface connectivity with the IBM environment. With Orion sacing as a full mer ar rather than a third-pury supplier, Apple might finally be able to make good on its more supplied and the control of th

A fourth factor is the overall industry

movement toward systems integration. in the commercial market, as opposed to the federal government market, SNA must usually be contended with in some orm or another. It often represents the ntegrating element — that is, the function, feature or capability around which he recised is built.

the project is out.
Companies with SNA development
expertise readily available to them are positioning themselves for a future significantly more complex than the LAN environment in which both Apple and 3Com
cut their communications teeth.

Pieig is director of systems research specialising in local-area networking and Bibli communications for International Technology Group in Lee Altee, Culf.



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NETWORKING

MCI Skyline crosses Atlantic

nect answerance in a memorary of the Communications Corp., has introduced dual-line service between the U.S. and 12 European countries: Ireland, Germany, France, Belgiom, Deennark, The Netherlands, Norway, Sweden, Spain, the UK. Switzerland and Italy. Dual Line allows customers who subscribe to MCTNT-8 cable service, stated

Dual Line allows customers who a scribe to MCI TAT-8 cable service, als to be out later this year, to lease a back MCI Skyline international satellite circ for considerably less than if the servi are ordered separately, the firm a Dual Line requires a three-year comment, and pricing for it can be combin ith special packages from oversess to emmunications administrations.

ACS Network Systems, a supplier of electronic data interchange communications and translation notware, has unveiled EDI/400 Management Software for IBM's Olympic Series System for the Apolication System/400.

in a recent interview, Novell, Inc. said it has stopped including Action Technologies, Inc.'s Coordinator electronic mail system in its Netware network operating system, beginning with Advanced

Netware Version 2.11.

"There is no end-uner mail system i Netware anymore," said Nancy Wood ward, president of the firm's Austin, Ten as-based development products division.

woodward said Novell has teamed up with British Telecom International to develop an X.400 E-mail system for Netware because Novell is looking for a gateway for its Message Handling Service into the X.400 world. British Telecom already has an X.400 system—the PC400—that is compatible with Netware.

Communications Disaster Recovery Support Program. The service reportedly provides backup data communications

ning assistance to restore network facilities after a disaster. Subscriber networks will be able to resume operation from the disaster recovery site even if the original site equipment has been destroyed.

Nationwide Electronic Systems, Inc. (NES) has published a free brothers on getting data to and freen writes programmable logic controllers. It presents speciic details on the use of digital meters to enhance automated manufacturing opertion. The NES Applications Berchare in validable by writing Jerry Bestler, NES, 3033 Waterfeld Drive, Carpenterville,

Rabbit Software Corp. in Malvern Pa., said it has signed a marketing agree ment with Gain Systems, Inc. in Scoul South Kores, enabling Gain to marke Rabbit's complete line of DOS-base

products in South Korea.
The two residents also completed what hey claimed is the first full-flustured Haberdulanguage implementation of a 18270 contail adapter card. Specifically, and cortical adapter card. Specifically, also closes, a 3270 contail add-in board with oftware, and South Korea's Hangeel language. This product is said to be the first on apply South Korea complete makers with an attenuative to IBMA proprietary with an attenuative to IBMA proprietary.

Herb Hensley, 48, president and chief exception of the Race, Inc., was recently named 1986 Entrepensur of the Year for high technology in South Texas by Wonkers Magasine and Arthur foung, Data Race makes high-speed, fullsplace, error-protected, din-lay moderns, it claims to have pioneered dial linkup of errore asynchronous terminals with sysems at speeds previously attainable only of direct, local connection.

Wollongong Group, Inc.: In Palo Alto, Calff., has agreed to port the New York State Education and Research Network's network management software to a variety of platforms, including Digital Equiment Corp.'s VMS, Microsoft Corp.'s MS-DOS and Unix operating systems. The software is and to provide host configuration, problem determination and network configuration for Transmission Control Protocol/Internet Protocol networks.

Lavel One Communications, Inc. in Folom, Calif., and Mittel Corp. in Kanata, Ont., have announced a five-year agreement to jointly develop transactivers that will support TI and integrated Services Digital Network transmissions over twinted-pair telephone connections. The market for such transactivers will reach \$700 million by 1992, the partners claimed.

The Lanier Voice Products Division of Barris Corp. unveiled an agreemen with Barris 3M DPI to Isunch the national distribution of Lanierfax, a series or private-label facismel machines. In addition to managing distribution, Lanier will also provide all technical service and customer suspont for Lanierfax.

Chromatic Technologies, Inc. in Frankin, Mass., amounced that several of its standard fiber-opic products, including the Chromatek Series 800 plenum cables and the Series 400 cables, are certified for Tempera tamélications.



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IBM. The Bigger Picture



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A network that can't keep up with your company's growth is something you can really lose sleep over. Because there's too much riding on your ability

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er users to access and process in-on from asynchronous host main-

Westford Harbor Co. alled Reunion Connectivity, the uct provides a platform for bidirec-il communications between host outers and PC applications. A multi-ng kernel is included to enable the ware to run behind other applications

Emulation of Digital Equipment Corp.
VT220, VT100, VT52 and IBM 3101
terminals is provided through a serial port
and a network adapter, and the package
supports industry-standard protocols
variable on the boot computer.
Resultion Connectivity costs for a PC Is—

ra PC ficense.
Westford Harbor, 288 Littleton Road, Crystal Point, Inc. has enhanced its

Crystal Point, Inc. has enhanced its synchronous telecommunications and emulation package, P.C.Terra 3.2. Siz additional terminal emulations have been added: Data General Corp. 440, Honogwell, Inc. VIP 7801, Alpha Microsystems AM62, Cider T205, Expiratell, Microsystems Am62, Cider T205, F591, All sare provided at no extra cost to existing P.C.Terra 3.2 users, who can download them from Crystal Point's on-line update system.

Package capabilities also include macro programming, multiple sessions and remote access. The software supports multiple text file transfer modes and is

said to be capable of emulating a total of 23 different terminals. PC-Term 3.2 costs \$649 for up to eight workstations and \$1,600 for up to 32 workstations. Crystal Point, Suite 202, 12707 120th Ave. NE, Kirkland, Wash. 98034. 206-

Protocol converters

An intelligent data switch and protocol converter designed to interface with Eth-ernet and Starian local-area networks has en announced by Quasitronics, Inc.
Called the Q-8100, the product re

Called the Q-S100, the product re-portedly can expand an existing network by providing eight individually address-able asynchronous RS-232 ports and two Ethernet or Starian ports. Integration re-quires carrier-sease multiple access with collision detection and 1M byte of memo-

ry on board.

The Q-8100 carries a price tag of

211 Vandale Drive, Houston, Pa. 15342. 800-245-4192.

BBN Communications Corp. has an-nounced two dual-processor packet-switching nodes, the C/3D and the C/300D. According to the vendor, both products act as end-point CCITT X.25 switches and concentrators and include a proprietary intelligent bus switch to ensure continuous communications

Features include automatic switch-over without operator intervention and power-on servicing. Decentralized net work management functions such as mul-tiple addressing options and call account-ing are also included. The products are configured with two packet-switching processors, the intelligent bus switch two power supplies, two sets of I/O logic and one set of fantails, all contained with

single cabinet.
The C/3D and C/300D are priced tarting at \$54,000.
BBN Communications, 70 Fawcett St., ione, 70 Fawcett St. 02238. 617-497

File servers

A local-area network-based distributed data base server has been introduced by Via Information Systems Corp. The company claims that the product, Via/ DRE, will bring full mainframe-like ca-

Via/Cool costs from \$1,395. The Vis Host Data Base Server costs from

\$3,500.
Via Information Systems, Suite 209, 101 Carnegie Center, Princeton, NJ. 08540.609-243-0433.

Xyplex, Inc. has enlarged its communi-cations server lineup with the addition of an eight-port terminal server card that supports RS-423C connections.

The RS-423 Terminal Server Card was designed to play into Xyplex's Maxister Stool, a high-density commentations server that offers both Digital Registers Corp. VALYMES and Engineers Corp. VALYMES and Control Protocol/Internet Protocol/CIP/BPI supports speeds of up to 38.4K kirl sec. at 500 ft and 19.2K bit/sec. at 100 ft. The product is connectible with 000 ft. The product is connectible with 000 ft. The product is connectible with 000 ft.

sec. at 500 ft and 19.2K bit/sec. at 1,000 ft. The product is compatible with most RS-232 connections. However, the vendor offers an RS-232 card for devices such as certain private branch exchange switches that may not be RS-423-compatible.

patible.
The RS-423 Terminal Server Card
Model MS-Asynch J8 costs \$1,395.
Xyplex also announced it is offering a
Thin-Wire Ethernet Cluster Controller. The product is said to provide
eight asynchronous connections to DEC'a

troller. The product is said to provide eight asynchronous connections to BEC: VAX/VMS processors or to other hosts running TCP/IP. Users can then access terminals, workstations and other devices on a Xyplex network over a local or remote Xyplex server.

The controller is downline-loaded by

I no controller is downline-loaded by application-transparent software that resides in the VAX/VMS system. The product operates with either host interface software running over an existing VAX. Ethernet controller card or over an optional enhanced-performance plug-in card for the VAX.

The Thin-Wire Ethernet Cluster Co he Thin-wave er coets \$2,575. On Plannino Drive, Conco Xyplex, 100 Domino Drive ass, 01742, 617-371-1400.

Or VAX.



Or Both,

Electronic mail

PCC Systems has entered into a joi nurketing agreement with Data Voic folutions Corp. (DVSC)

DVSC wai minute PCA & Carindal elec-tronic mail software package in combina-tion with DVSC'a Centauar II multiuser, multiprocessor Microsoft Corp. MS-DOS-based computer system. The Cen-taur II series provides contralized MS-

m any mix of terminals, personal puters, LAN-attached PCs and remote peripherals via a modem pool.

The CC:Mail package costs from \$595. Centaur II systems cost from \$26,000 to \$185,000, depending on con-

figuration. PCC Systems, 480 California Av. Palo Alto, Calif. 94306. 415-321-0430.

infounfe Corp., formerly A-O Electron-ics, has introduced a security product for personal computers called Xfile-D. Xfile-

personal computers called Xfise-D. Xfise-D. SingD is a software encryption package designed for program and data protection on
the BBM Personal System/2.

Developed as an add-on product to the
K-Lock 50 Data Security System, the
product also uses Data Security System,
and methodology.

Xfise-D has an introductory license fee
of \$49.95.

1870-86, 2137 Finistone Drive, TackInfossfe, 2137 Finistone Drive, Tack-

Infosafe, 2137 Flintstone Drive, Tuck-er, Ga. 30084. 404-491-8044.

Modems/Multiplexers

or with Microsom Networking Profocal (MNP) Class of state Compression, and the compare has introduced a new model; the 2400PMC. In a light-speed, field-spaler, dai-up modern incorporation, and the compared of the compared of the compression of the compression of the compared of the com

tronc.mail.

The 2400PAC costs \$795. The
2400VP with MNP Classes 4 and 5 upgrade costs \$595.
Racal-Vadic, 1525 McCarthy Blvd.,
Milpitas, Calif. 95305. 408-432-8008.

An integral asynchronous CCITT X.25 packet assembler/disassembler (PAD) has been introduced by Codex Corp. as an option for its 2600 series of point-toint modems. The X.25 PAD is said to allow net

work users working from a single location to run multiple programs in multiple

outs.

The product is available as either a sur- or eight-port card and was designed at use is X.25 networks.

Configuration of the PAD is accomished through the X.25 network control erminal, the Codex 6510 Netminder

asynchronous terminal.

PAD functions include the shifty to
time drivion multiplex either one or two
channels and a broadcast mode for heavy
outboard traffic applications.

The four-port X.25 PAD is priced at
\$2.570.

2.3.50. Content has in our engage-port version cours.
Codes that also increased the Codes 2334, a dist modern with Microcom Herwitzing Procured and speed converse and the Codes 2334 force and openines at Opening Actions, the modern in BM Personal Gomputer AT command software compatible. In synchronous applications, the Codes 2234 Ferre Auto Cell Utilit study in V25 bis companion and Cell Utilit study in V25 bis companion configuration, operations and testing.

mg.
The Codex 2234 costs \$595.
Codex, Maresfield Farm, 7 Blue Hill
River Road, Canton, Mass. 02021. 617-364-2000.

series of fiber-optic modems and mati-leazers for the IBM \$250 environment is we waitable from Opcom, Inc.

The Twinaxers series was designed in IBM System/36 and 38 computers at incorporate \$250 communication orticols, and the products reportedly an maintain links up to 15,000 ft.

Th OC406X multipleazers are avail-ble in four- and eight-channed units with

varying combinations of twin-exist and fi-ber connections. The multiplexers are priced from \$2.995. The OC.3269 fiber-optic moderns were designed to coance? System/68 and 38 terminals to a local controller. The OC.3250 costs \$525. Both product lines are equipped with ten-mode switches. The OC.3250 costs \$525. McKin-ney, Texas 75069. 214-542-3358.



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A T1 channel service unit that provides the interface between customer equipment and a T1 fa-cility is being offered by Data-

iel, Inc. The DCP3552 unit inch sting capabilities, storage of storical performance data, mode and front panel control and signal format conversion.

The T1 facility may be T1.5,
AT&T Accuset Reserved 1.5 or

other equivalent T1 services Customer equipment may in-clude T1 multiplexers, D4 chan-nel banks and private branch ex-changes. Transmission distance is said to be up to 6,000 ft with

Is said to be up to 6,000 it with 19-gauge wire. The DCP3552 costs \$2,950. Datatel, Cherry Hill Industri-al Center, Pin Oak and Spring-dale Roads, Cherry Hill, N.J. 08003.800-424-4451.

An automatic line switch that re-portedly allows facsimile and modem-based terminals to share a single, standard telephone line has been announced by Extel

Corp.
Called Line One, the product allows customers to send and receive facsimile and data communications from a modern-based personal computer or message terminal without installing a sec-

cod line. Line One runs on 115 VAC, 60Hz and has a 230 VAC, 50Hz option. It is compatible with Hayes Microcomputer Products, linc. moderns and most Group II and III facinite terninals. A standard phone line and R[1] jack are required.
Line One costs \$295.
Ext.el. 4065 Commercial Are., Northbrook, III. 60062.
31.9.01,9411.

312-291-8410.

A security modem that includes Microcom Networking Protocol Class 5 error control capability has been announced by Western Batacom.

The 424 Line Backer is a 2,400 bit/sec. V.22 bis and AT&T 212A compatible device that features extraction disperse.

that features extensive diagnos-tics and speed convertion func-tions, the vendor said. The product's nonvolatile memory allows for user configu-ration as either a two-wire dial-up modern with callback security or as a two- or four-wire leas line modem with two-wire dial

The 424 Line Backer costs

Western Datacom, P.O. Box 45113, Cleyeland, Ohio 44145. 800-262-3311.

Diagnostic equipment

Telenex Corp. has introduced the Spectron Networker, a se-ries of network control and diag-

nostic products.

The products were designed for data centers with manual patching or switching equipment as that they may be upgraded to support automated monitor access, circuit status, alarming, remote monitoring and fallback

The core of the Spectron
Networker is an IBM Personal
Computer or compatible that
functions as a host controller and
contains the Remote Monitor
Access and Remote Smith Core

ator interface.
The products reportedly support networks from 16 to 512-lines per note as well as single-size networks or networks with up to 64 remote nodes.
The Spectron Networksr coats from 3180 per line.
Telenez, P.O. Box 869, Mr. Laurel, N.J. 08054, 609-234-7900.

panded its protocol analyzer nily by adding the Twinax-upe to its IBM Personal Con-pressoral

scope to its IBM Personal Com-puter-based product line. The product was designed as a support tool for suppliers of twin-axial-attached products for the IBM System/34, 36, 38 and Application System/400 line of

rinszacope can provide both ppliers and users with a meth-for resolving twin-axia rorking problems. The de incorporates a persons puter board and software fo erting IBM PCs and con le systems into twins analyzers. Features incl

ogies, 38 Pond s. 02038, 617-



ABOVE ALL THEREIS

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IN DEPTH

Living in two worlds: A programmer's lament

BY DAN WOODS

· The emotional side of programming · Like philosophy, it begins in wonder

• Mad scientist or bureaucrat?

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INFORMIX-4GL recently won
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counted "Bodges" unport of the counter of the

coveted "Readers' Choice" awards in their respective categories. Better yet, the same readers named INFORMIX-SQL the best UNIX software, period.

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the only true COBOL replacement caliber tool. While those onthe tallber tool. While those onthe DBMS products masquerade as 4GLs (providing mere report writers and screen generators), INFORMIX-4GL gives you a complete language.

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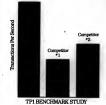
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#1 for good reason.

Why do we do this? For most us, I think it is based on the ct that a person with a question

Somebody meedrus, for heav-'s sake. We exploit their peed

ng departments: An end ives somewhat anxiously th a question or problem. The lem, interrupting only to point out errors or to chuckle at the user's difficulty in speaking in

to have a question and or have a problem mathat exists within our lives.

How many times has this scell movingly at the desperate user by do we do this? For most marks played itself out in promote and starts explaining his theories. about the cause of the problem, while checking them out by rif-fling through a variety of listings

At first, the end user tries to he interested in these theories, but then the terminology starts swooshing past his head and ric-

ocheting around the cubicle, creating an orbital hase of confuwatch and squirming in his ch

> ing as soon as he has inhypnotic effect faxed eyes and a temarked by glassed eye sly puzzled expre

watch and squirming in his chair as the programmer tries to ex-plain the knowledge he used to solve the problem. Eventually, the programmer realizes he in talking to a brick wall and just says, "Okay, I'll take care of it."

Instead of leaving with a arm glow, knowing that every-ning will be put right, the end

Instead of being satisfied that has the ability and knowledge

LL AN end user has to do is look halfway excited about a techni cal detail and - regardless of the sincerity of the spark — a fire is lit within a programmer.

mer feels his skills are not appre-ciated. What should have been a helping transaction turns out to he a frustrating experience that

w many times has an enc called a programmer after hav-ing erased every file, hegging to he told what to do? And what is the typical response? Jokes, snickers, conte

ssion: How often do programmers assure the bereaved in such ions with the encouraging explanation that eras your files is like the first time you get thrown from a horse? When is an end user educated with advice about using the save func-tion early and often or warned about the hideous power of the

ild-card character?

The malaise of isolation in hich so many programmers re is also understood and market is also understood programmers. Sooi

ess of the sincerity of the spark

a fire is lit within us. The tinbox of unshared curiosity es up and takes over our ids. We remember when we

Who can blame any of us for this kind of petty sadism? After all, the average progra



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THE VISIBLE EDGE

ceive? Usually a screaming one call in the middle of the ght about a program that sen't work. How many times we you heard of a programmer ing called to say nothing's go-

wonder dayz ramming, like philosophy, as in wonder. At least it did for me. Today a younger genera-tion was reared in the 1980s. a time when computers have been as common as tonsters. But I always saw computers as some lind of special, revered object. When I began my career as a pro-grammer, I never really saw a computer — only the terminals ented its ul

After my first programmir sss in college, I was deep soked. I felt algorithms cou

HEN I began my career as a programmer, I never really saw a computer — only the terminals that represented its ubiquity and power.

programming in my mind. When I would risk or well-risk on an elevate was a would start writing an algorithm most efficiently. At groups most efficiently, At groups well of the start of th

e computer metaphor. Throughout this time, transformation took place. Grad-ually, as my knowledge of com-puters grew, I wanted to share my excitement.

ile I was in the beg While I was in the beginners' classes, I could share some things with my friends. I would tell them about the game of "Life" or some other introductory programming exercise, and there would be some gimmer of understanding in their eyes.

understanding in their eyes.

But in the more advanced classes, my isolation became complete. The only people who could understand the grueling drams were the other students in the class. They were the ones who attainbled around the terminal room at 4 a.m. when anything anythody said seemed completely hilarious. I reassember the night before our compiler was due. A few teams of students had their reason of students had their reasons.

standing around the terminal room mostly just to glost and

mane comments.

Other teams were almost done, finding a few bugs here or there. Then there were the unfortunate ones who did not have enough time to finish — and knew it. They changed and compiled, changed and compiled, hoping they might get lucky and

re the correct code spill out of g of us soberly glanced at one an-is minds through some kind of other as if to say, "It could have

er how long past nt, one of the unfortunate enough of chasing after a particular bug and be leaped up and screamed at the top of his lungs as be ran out the door. A few people laughed as the door laummed behind him and a screen and the screen and the screen and the screen are screen as the screen and the screen are screen as the screen as

Med accounters in those first days of my life as a programmer, the only frustra-tion sprang from the difficulty of learning. The fact that nobody lease understood the work we were doing made it all the more

who were living on some of created by the challenge of p gramming. The isolation of o id gave us a n

But when I ente ed the w ship was somehow left behind. The first time I entered a large



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bright with fluorescent light. Rows and rows of washing machine-type disk drives filled the center of the room. The CPUs stood lifeless in a corner. All the operators had an unconcerned air, like off-duty sol-

nao an unconcernea ar, sine oti-nuty soldiers leaning against tanks.

The people I worked with at that first job in a big bureaucracy wanted to be anything but programmers. To be a programmer was not to be part of an elite monastic

Of course, the work was very much the man. It was jast as exciting to per dome-thing working and running well as it has develone. But the reward of the work it and 'wasn't enough, in order to be something work in the course, in contrast to be contrast to except, and the course of the course of the course of the course of the facts of the . "Programming is fine," he explained, "but it is just look at the way the work work." He drew two beness side by side on a sheet of paper. He is also believed on "technical" and the other labeled on "technical" and technical labeled on "technical la

"management."
"The way the world works," he said,
"is that if you are technical, then you are
given things by management, but if you
are management, you give things to your
are management, you give things to your
self." He then drew arrows from the top
of the management bear pointing down
onto the technical how and chuckled. "You
don't want to be feathwarf if you can
don't want to be feathwarf if you check
do you?" he asked, emphassing the word
technical like it was some fatal disease.

Programming for a living
I have one friend who works as an IBM
systems programmer. When people ask
him what he does for a living he just says
"programming" and doesn't try to explain any further. "Not that anybody is
really that interested in finding out," he
adds with a disquested look on his face.

aons with a disparted look on his face. It's always a struggle for me when someone asks me what I do for a living. It's always a puse and think to myself. "Should I let it out? Should I let it out? Should I really try to explain that al-hough I only work with inner to objects, the feelings generated by them run deep? Should I explain the chillenge and satisfaction of comparing one's capacities for error?" Usually the answer to all them of the other control of the oth

But sometimes when I'm out with another programmer, I get tired of setting for the kind of lossiton that springs from the ligatoriance of the rest of the world. I just think to myself, "Well, if they don't get jokes about recursion, then that's not my problem." And my programmer friend and spin technical jokes until everyone is just tack to fur.

Sometimes the luddies are openly aggressive. One lawyer friend who was eating dinner with me and three other friends abruptly stopped a conversation we were having about biological computer memo-

ries. She thought it rude of us to make her suffer through a technical — read "borning" — conversation. Later that revening, she went on and ou shout the legal dectain of a Supreme Court case, but of course, that was OK. The vagaries of the legal profession are within the realm of polite conversation. Biological memory just disease "involve."

conversation. Biological memory just doesn't make it.

Then there are the people who really try hard to be interested in computers but just cannot seem to get the hang of it. They are amazed at all the wrong things. The simplest features of a word processor, like outting and pasting text, are seen as gramotions achievements. I feel like T'S ALWAYS A STRUGGLE for me when someone asks me what I do for a living. I pause and think to myself, "Should I let it out?"

grabbing these people by the shoulders and saying, "I love your enthusiasm, but couldn't you be just a little more sophisti-

Full of life
Why do we programmers need this reinforcement from the outside work? Is our
work so mundane and tedious that its re-

wards in themselves are not enough to satisfy us? No, our work is far from lifeless. Logic

does not preclude emotion. Contrary to the popular image of the cool and sterile scientist, the history of science is full of emotional hotheads who fly off the handle

Mile thinking precisely.

In computer science, feelings are gederated through a struggle with oneself to create a consistent and efficient algorithmic structure to solve a problem.

Anyone who has set out on a debugging mission knows the feeling: Strapping oneself in a gainst a flawed finite automated.

too; hearing the sound of revving engines in the riffling pages of a manual, entering commands with a smash of your hard and then a spin is your chair until the moment is over and your gaze returns the luminescent glow of the tube. Much of the pleasure of debugging is expressed by an exclamation that one programmer doubbed "the programmer's

Much of the pleasure of debugging is expressed by an exclamation that one programmer dubbed "the programmer autonal enthem." There is a gasp and a whole the subcomment of the programmer the subcomment of the programmer of the the subcomment of the programmer of the known. "Why is this variable zero? Who notes it? What is its initial value?" Then, and "You 're done cachaling that you have just given a rendition of the promise party given a rendition of the pro-

grammer's national anthem.
A tingle and exhibitation comes with

Three words that throw fear into the hearts of our competitors: aving found a solution. The best feeling a when you find a bug without reasoning out simply by intuition. The most trivin letail can spark a voice in your mind that

sting aspect of debuggi tions affect you. If you g ach by intuition, making chang eing if they work, and then be ted when we can't think of anoth on to pursue when a theory pro-

. In a mature programmer, the mo emotional he feels about a bug, the mo he sticks to his bug-solving methodolo

ad processor ...
In an immature programmer, neeming motional about a program can lead to an aproductive cycle of change-and-hope, because his goal is to do be minimum amount possible to get the

the maximum amount possible to get the program working.

Design also brings a shock of recogni-tion that usually comes a little more grad-tially and in stages. When designing, one tries to spin webs of logic that cover the complete set of possible inputs and squeeze them out into different destina-

ns.
One starts by constructing small dis-macted units of webbing and then at-mpting to connect them all to solve the hole problem. Then the design is

Program designs are usually too large of complex to keep completely in your ind at one time, so crystallization of the muplete solution cannot happen as ackly as fixing a bug.

But when drained from an exciting und of designing or debasesing.

can saare the experience. I hese ex-moces are solitary ones; they are lone uphs relived and enjoyed lying in bed at night, staring up into the dark, jine hitting a home run in an empty sum. Would the satisfaction be nearly

as great?
We really don't want anything out of life that other people don't have. We simply want to feel that the fruits of our labor help neople and that the state them.

nical work, the res

yone's lives. Society will be filled with ople for whom an IPL is as normal an tivity as making toest. A program

ctivity as making tosst.

A programmer will be able to go into a
r and talk about that bug that be has just
sed and meet with real understanding.
That a warm and comfy time that will be,
set for now, we must settle for the
heezing vestiges of laddism that keep us
ourselves.

Not unique Of course, this kind of isolation exists in every specialty. But in many specialties there is some kind of human experience

E REALLY don't want anything out of life that other

people don't have. We simply want to feel that the fruits of our labor help people and are somehow appreciated.

that we can all relate to and understand and that we go through in our daily lives. At some time, we must all deal with po-licemen, lawyers and doctors, so we know what at least some aspects of their worlds are like. But the relationship of a pro-grammer to his work is something that

not everyone goes through - at least no in 1988.

Programmers have not been good at explaining the experience. The good hews is that we won't have to. Everyone will inevitably be a programmer in some sense. How many millions have now learned to use a terminal at an automated teller machine? How many millions more nonprogrammers will be writing and maintaining programs in order to do their

jobe? In my opinion, all future jobs will be re-ducible to programming tasks. In those days, a denore will complain to a painter about the bug in his choreography data base, and the painter will respond that he really hates those languages that declare variables implicitly.

arrables implicitly.

Can you imagine a political process in thich Mike Dukakis accuses George usb's campaign of incompetence besuse it uses a batch mailing-label system. cause it uses a batch mailing-label system while his campaign has a completely inter-active, menu-driven, update-and-query front end? Or Reagan sending Gorbachevelectronic mail? Or summit regotiations conducted via a computer videoconfor-

ence?

At the world of computers and pro-gramming expands to touch more First, the isolation of the programmers will decrease. But smill that expansion occurs, reorgammens will simply have to be hup-py with the reward of the programming ri-self. We will have to fire our fiven is two programmers will have to fire our fiven in two programs—and the world half with our programs—and the world has notinged the two as much as we

A network is a complex

When buying one, it's im-portant to evaluate the network as an integrated unit, because a network is more than the sum of its parts.

acity your overall network can handle, to be sure your network doesn't run out of gas during peak loads.
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long it takes to switch a call through another route when node knockout. Plug back in to see if and when the node gets back up. PACK THE NET. Verify the

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work acid test. Because it gives us the

opportunity to show you superior performance and cimum communications advantage - proof positive.

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CAMOTTY CHECK. Verify the number of trunks and ports a node supports, and the ca-

NODE KNOCKDOWN/KNOCKour. Pull different cards, shelves, and other components to see how nodes adjust to a knockdown. Pull the plug on a node to see how the network handles a

MANAGEABILITY ACID TEST.

Give network management

tools a workout to see how

easy they are to use, and how

a node site to the network to

see how complicated and

time consuming an additio

much control they offer. Add

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MANAGEMENT

AKING CHARGE I. A. Savage

Cool dudes need not apply



gineering and computer sci-ce, may soon have access to all

clude hard-core computer aci-ce. Money can be made faster oorts cars are the trappings of occess, not wingtips and pocket rotectors. And while they may a able to hack with the best of sem, running an MIS depart-ent is, like, totally goober. Enter an immigration bill ast could provide a new source skilled MIS workers. Already

sed by an overwhelming e in the Senate and awaiting roval by the House of Repre-tatives is a bill that would

The definition of "skill" is up to the U.S. Department of La-bor, and those immigrants , and those immigrants and account for 55,000 per par. Two other categories

Study: CIOs rank high in health care hierarchy

BY JAMES CONNOLLY

CHICAGO — Chief informati CHICAGO

officers (CIO) in the health care field are breaking away from a reporting structure that places them under the chief financial officer (CPO), according to a recent study by Chicago-based recruitment search firm Heidrick

cens study of Calcago Bledrick and Struggles, Inc.
Now, ClOs are more likely to report to their organizations chief executive officers or chief operating officers or chief operating officers (CO). Product Million Calc Product Control of the Calcago Calca

The firm surveyed 21 5 health

The firm surveyed 218 health care organisations ranging in size from fewer than 200 beds to more than 1,000 beds.

CIOs in larger organizations tend to report to their COOs or CFOs, while those reporting to CEOs are more likely to be in smaller hospitals, according to Heidrick and Struggles. The firm found that 37.2% of CIOs report to COOs and 34.5% report to COOs and 34.5% report to COOs and 34.3% report

CEOs.
Heidrick and Struggles also looked at CiO salary structures and found that more than 80% of head care industry CiOs earn

base salaries ranging fr \$50,000 to \$89,900. Those the \$50,000 to \$69,999 ra tended to be in smaller hospit while those in larger organ

Data View



HBO breeds MIS star

VP Collins splices info services, business side

BY ALAN ALPER

NEW YORK — To excel in an in-dustry marked by bloody com-petition, entertainment compa-nies need MIS executives who are as crafty as film directors or

User interface
Yet "Albee," as Collins is known
within the \$1 billion Time, Inc.
division, in the first to admit that
advanced technology is not suffi-cient in itself to deliver useful information. The \$7-year-old native New Yorker spands a lot of
time roaming HBO's offices to
assortain user needs.

PROFILE -

Albert E. Collins Jr.

"The key is to give people in-teresting work and let them do it," Colline says in an understat

Rodgers joins Transamerica Life



systems. Buick joined the elec-tronics and appliance retail chain in 1987 as director of informa-tion systems. He previously

un unpergraduate degree the University of Illinois completed an executive program at Northwestern tensity in P.

A new CIO wellspring?

BY JAMES CONNOLLY

he corporate world's expectations for the chief information officer (CIO) of the re evoke images of a superhaman be-He or she will understand technology

ranks of manufacturing and engineering, which is an area with a product orienta-tion and an overview of the business," said Mit Bryce, president of M. Bryce & Associates, Inc. in Palm Harbor, Pla.

Managers trained in data processing ad in areas such as accounting hold too-arrow viewpoints to succeed as CIOs.

The key to being a CIO is to look at the elopment of a system as the develop



OMORROW'S CIO will come from the ranks of manufacturing and engineering.

MILTBRYCE M. BRYCE & ASSOCIATES, INC.

on: Blueprint for the 21st Century, is seduled to be published this summer, arged that MIS focuses too much on w technology can be used rather than how problems can be solved. He cited

m.
"DB2 is a tool for managing files. It's
"the last word. It's one of a number of tools for managing files, but you have to ask yourself what happens if you are man-aging the wrong files," he noted.

Health care CONTINUED FROM PAGE 73

tions reported salaries in the \$70,000 to \$89,999 range. The highest salaries were in the \$110,000 to \$119,999 area, which were reported by 11.1% of the CIOs in the largest hospitals.

Budget range
The typical budget managed by the par-ticipating CIOs was in the \$1 million to \$5 million bracket, which was cited by \$6.4%

ilion braczes, winder the respondents.

In looking at health care CIOs, Heidda and Struggies defined the typical extrative as a 43-year-old white Protestant ale, married to his first spouse. He holds in employed by a rofit organization, has be est institution for seven ye

health care CIO manages a depart-budget of \$3.8 million, believes he report to the CEO, thinks CIOs of emphasize their strategic role or than their managerial role, be-a that within five years, CIOs will be nonplace in health care institutions

different LANs. We'll tie them together. OK. Your facility has a number of Ethernet Local

Area Networks And now you have to tie them together. But

some are on broadband, and a few more are on baseband. One or two are even running on twisted pair cables. This is where we come in. We're Chipcom.

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MANAGEMENT BRIEFS

Manufacturers pine for integration

Progress has been made, but there is still a long way to go. That seems to be the situation as far as computers in man

A study of computerization at aller manufacturing firms maller manufacturing firms hows that 94.1% use comput-rs, with more than one-third of s, with more than one-mind on one companies having used stems for more than 10 years, enty of the surveyed managers id they would like to have all tions integrated into a single em, but only two of the 219 ratem, but only two of the 219 spondents claimed to have all sanufacturing, financial, engi-cering and management func-ons fully integrated. Hubbard Research in Chi-ago conducted the survey of

sufacturing businesses with ual sales ranging from \$10 ion to \$50 million in conjunc-with Hewlett-Packard

Co.

The researchers noted that almost half of the manufacturers plan to change or upgrade their systems during the coming year, with respondents citing reasons such as transing out of capacity, the need to add a computer-side old design facility and the need to integrate more functions on a machine.

The Communications Man-agers Association (CMA) re-cently elected 10 members to its board. CMA represents the tele-

communications interests of 200 user organizations.
Those elected to the board included CMA President Anthony F. Matters of Prodigy Services Co.; Jerald V. Marzone, first vice-president of CMA and assistant vice-president of telecommunications at Crum & Forster Corp.; CMA Socond Vice-President Kutt Mobrl, who has spect. 25 years in the telecommunications at the communication of the co dent Kurt Mehr, who has speet. 28 years in the telecommunications industry with firms such as Salomon Brothers, Inc., Geldman, Sacha & Co. and Young & Rubicam, Inc.; Goldman, Sacha & Go. and Young & Rubicam, Inc.; Goldman, Sacha & Go. and Young & Goldman, Sacha & Go. and Young & Goldman, Sacha & Go. and Kapitoniak, vice-president of Jiving Trust Ca.; and Middenh Slash, socretary of CMA and director of communications at City Rederal Savings Bank.
They also included CMA Pirre Past President Douast M. Gaffner, vice-president of Plunds-rev., vice-president of Plunds-rev.

Past President Jonald M. Garl-ney, vice-president of Funda-mental Brokers Institutional As-sociates; Lee Caputi, CMA second past president and vice-president of telecommunications resident of telecommunications perations at Goldman Sacha; say S. Schumer, director of elecommunications at United lates Trust Co.; Charles Mu-y, assistant director of tele-ommunications at Travelers In-

surance Co.; and Al Bieber,

The 1-year-old Society for In-formation Systems Quality has launched its first official

nembership drive and a member dressed. Topics in the first news-ewsletter, known as "Quality letter include logical data base design and loss control.

Times." |
The society was founded by a group of information systems professionals who said they were concerned that quality issues were not being adequately ad-Information about member-ship is available from the Society for Information Systems Quality, P.O. Box 721, Sparta, N.J. 07871.

voiced agreement. More than half of the managers

Diversion, be proud and happy in tag, the computer industry said to the property of the possible, according to a statement. Survey by Adal Personael Services in Mendo Park, Call: ployace also happy employees from the property of the property happy that property of the p strongy agrees with the statement.

But were those proud employees also happy employees also happy employees?
Only 15% of the personnel managers and that more than 75% of their staffs were happy. The computer industry led the way, with 30% of its personnel managers saying their work.

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ALEND

Interest, North America nois and Technical Un Pla., Aug. 7-12 — Contact med. AND F

Savage CONTINUED FROM PAGE 73

COPT INVASE PROVENTION 1.

COPT INVASE PROVENTION 1.

The Department of Labor does not yet have a definition of What those skills would be, but Demotrico Papadementriou, director of the department's immagines invoid be yet have not been proventioned to the department's immagine policy group, says be imagines in would very much include computer colores. Current policy ties the alies to a specific job rather than a job chassification has those views are available to lose than

technical expertise, like India or Japon. This is America, and we are supposed to be fair about things. Countries like Iretans and Italy, which were mentioned by Sen. Edward Kennedy (D. Mass), one of the bill's aponators, will have a chance to sent their geniuses abroad. Each of those two countries will be allotted 7% of the "skilled" visus available. And while attempting fairness, it's skill "dawnicans first." The Denartment of the Sentence of the Sentence

That may improve the picking for MIS directors — most Americans we rather hit the ground skateboarding.

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HRO

CONTINUED FROM PAGE 73

ed fashion. "In other words, don't over manage. Be there to assist and monitor but don't sit over their shoulder and di

Collins eschews chargeback mecha-nisms, saying they put too much emphasis on costs and not enough on developing with end users, he says, is gained through sard work, trust and mutual respect. Taking an empathetic position with end users engenders systems developed on time

engencers systems developed on time and within budget, be says. "One of the advantages we have here is that we have a young, talented and alert

work force," says Collins, sitting in his comfortable Manhattan office overlook-ing Bryant Park. "They're very eager and interested in using information technology solutions. They're not adverse to trying new things.

That is not how it always was at 15-year-old HBO, however. Before Collins came on board, HBO did not effectively use sales data. Moreover, the billing system that was in place did not provide upto-date subscriber data. "They had a good start and some good people, but their efforts were not closely attuned to the busi-ness, which was growing fast. Their sys-tems were not in kilter," be recalls.

Time's treasurer, former HBO Chief Collins to bring order to the department

and to plan for the future. "The most important thing was to hire a person with a vision," he explains. "We needed some-one who understood data processing and ste relation to the business

Charting flow Collins joined HBO from Pepsico, Inc., at which he spent 10 years working his way up through the data processing ranks be-fore becoming corporate MIS director. He previously headed systems services at W. R. Grace & Co., spent time at AT&T

Upon joining HBO, Collins charted the flow of information through the organiza-tion as a way of becoming intimate with the operation's intricacies. He discovered that similar data was compiled and main tained differently by various depart-ments. Ownership of information was established to make one group or another responsible for data gathering and input. This eliminated a large number of redun-

dant data elements. "On the network programming side of the business, we had some 700 data elements identified, and when it came down to it, only something like 420 were actually needed," Collins recalls.

Inventory was taken of those systems ready deployed. Collins then evaluated coment and those that were contemplated. A three-dimensional triangle was used to track systems status from three perspectives; executive information, deon support and management control nd transaction processing. Each side of the triangle represented a different func-tional area: network programming, sales

and marketing and finance and personnel.

Collins then transformed HBO's woebegone batch billing system into a power-ful sales information resource. An on-line system - a sub tivity manager — was developed to im-

prove subscriber count accuracy. This system allows executives to query vari-ous aspects of subscriber data, enabling HBO to respond to trends as they devel-op. It also generates additional revenue

op. it also generates idoitional revenue through more accurate billing.

Management also decided HBO could no longer operate as an order taker. The division needed to use information tech-nology to better market its HBO, Cine-max and Pestival cable television services. Those services compete for the veces. I more services compete for the same entertainment dollar as other mov-ie-oriented cable television operations and with videocassette rentals. A system was developed to allow HBO's 10 regional sales offices to create

aggressive marketing campaigns target ed at specific markets and time frames.

h's not all fun and games However, broad entertainment industry

insight does not guarantee successful sys-tems development, Collins acknowledges. A project finance system to determine the A project mance system to determine the costs of putting on specific programs had to be reworked three times before it was successfully implemented. Initial failures resulted from a variety factors, Collins says, pointing to the technical complexities of the system and a basic minusderstanding of the art of "movie deals" that

standing of the art or movie wears
ied to usability problems.
Working within the freewheeling entertainment industry has allowed Collins
and his staff to experiment. For example, a services management system is under
development to enable program acquisition, scheduling and finance personnel to
share data in an Oracle Corp. data base

management system from Macintoshes running Hypercard.

Managing information technology projects will play a supportive role in HBO's effort to offer more original programming and increase its customer base. nample, a system was recently de-ed to awitch on service for private ite dish owners within 30 seconds of ir placing an order through region

came companies.
"You need to be careful with technology. You can fight it for a little bit and you may win the battle, but you won't win the war. The secret is how you amend, ge, modify and optimize so you don't your position." Colling concludes.

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COMPUTER INDUSTRY

INDUSTRY INSIGHT

Clinton Wilder

CA bid boils software stew



the, courteny of Charle g and his Garden City. , acquisition express.

 Y. acquisition express.
 Computer Associates went ome empty-handed last week fiter withdrawing its \$191 mil on offer for Management Sci-nce America (MSA), but the npany might as well have sted Gen. Douglas MacAr-ir when it did so. The twoek scenario that unfolded urly indicates that Computer sociates will return — per-

s not to Atlanta, but else-ere in the software industry. lang's software color rk, to do so by acquisition and ark, to on so by acquisions set-expand its nonsystems set-are business lines. If the MSA fer is any portent, Computer ssociates' deares are about to at the wills of software con-

my executives and sharehold-s as never before. That test will be this: What

ice will a company pay, in rms of sacrificing its poten arket value, to remain inde ich to the relief of MSA's gement, MSA sharehold-Continued on page 90

Computer Associates withdraws MSA offer

Data View

Takeover stocks surge

BY JAMES DALY and CLINTON WILDER

Computer Associates Interna-tional, Inc. last week reacinded its \$191 million offer for Man-agement Science America, Inc. (MSA) one day after MSA share-bolder teritin associated MSA:

Computer Associates left the door open for MSA to renew ne-gotiations, but the Garden City, the acquisition.

The potential merger is dead "unless MSA management changes its mind," said Charles

Taylor Jr., a software industry analyst at Prudential-Bache Se-curities, Inc. "And that's not ely at prices anywhere nea at Computer Associate uid want to pay."

veloper.
"I didn't want to see a hostil takeover," said Gary Biddle vice-president of informatic ervices at American Standard, nc. in New York. "MSA is a

Intel pops profit cork. toasts 386

BY CLINTON WILDER

SANTA CLARA, Calif. - Inte SANTA CLARA, Calif. — Intel Corp. celebrated its 20th birth-day last week by announcing one of its best quarters in history on the strength of its flagship 80386 microprocessor. Intel, founded in July 1968, reported second-quarter reve-nue of \$727 million, 66% higher than one year earlier. Profits surged 181% from year-earlier levels and 14% from the first

IBM's patent defense

Firm airs views on RISC licensing controversy

as reduced instruction se-puting (RISC) in warming up-puting (RISC) in warming up-tion after IBM unveiled attent policies regarding the sonal System/2, IBM began flying competitors with RISC

ifying competitors with RISC difying competitors with RISC tems that they may be in-inging on IBM patents and may hable for royalties. Other RISC makers and many

Alliant raises warning flag for first loss Weak domestic market colors minisuper maker's quarter red

BY JAMES DALY

LITTLETON, Mans. — Alliant Computer Systems Corp. has manned its damage control sta-tions, warming that it expects to report its first-over quarterly loss later this mouth as a result of domestic sales that are well

dow expectations.
"We've experienced weakss in the federal sector due to a
swdown in Department of Denac buying as well as a general
aggishness in the commercial
ctor," said Ronald H. Gruner,



Patent

cense and enforce our patents in general. What we are discussing with other companies is not royalties but a company's possible need to license from IBM if that company wants to use one of IBM's patents. The type of license granted or needed by the licensee depends on several fac-

until February 1986. You wouldn't go looking for other companies using your patents until they had been granted. Be-fore the patent has been issued, you don't have anything you can enforce. On April 8, when we made our an-

nouncement regarding patent licenses, we took great pains to emphasize that those practices apply to IBM's entire portfolio of more than 9,000 patents. Because PS/2 was in the news at the time and a lot of attention was being paid to companies building PS/2 compatibles, that announcement was interpreted as being just related to PS/2. The fact is, the

press announcement was for our entire portfolio of patents.

So the only thing really different is that ren't granted our first RISC patent our patent licensing royalty rates are

products may use IBM's patents without a license. In that case, IBM would call the company's sttention to our patents.

Who is IBM contacting?
I can't disclose who we're talking to.

Continued on page 86

IN BRIEF



systems



Data General difference: 18 years of cooperation."

And for the past 18 years, they've been helped by Data General

computers.
The first system, acquired in 1971 to study the tire curing process, was only recently retired and returned to Data General headquarters for an historical display Other systems are used for the computer-aided design of tire treads and mold cavity profiles, and for communications to IBM mainframes.

"Over the years, General Tire's computer-aided tire design

needs have grown more sophisticated, says Sieve Dingfelder, Manager of Technical Computer Services, "And Data General's systems architecture and communications links have provided us with computing solutions that work together, while offering a wun compuning solutions that work together, while offering a simple, logical growth path for the future. After time and experience with a veridor, you begin to trust what they claim. With Data General, we haven't been disappointed: If and out how but General can make a difference for you. Send in the coupon below. We ill send you the latest issue of the computer of the compu

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Intel

CONTINUED FROM PAGE 83

cluded Advanced Micro Devices, Inc. (AMD), Oracle Corp., Digital Communications Associates, Inc. (DCA) and Phoe-

nix Technologies Ltd.
Intel decided last year to be the exclusive manufacturer of the 80386 [CW, July 27, 1987], unlike its 80286 predecessor, for which latel licensed manufacturing rights to AMD, Fujitsu Ltd. and others.
"The strength of the personal comput-

er and workstation markets continues to drive our growth," Andrew S. Grove, Intel's president and chief executive officer, said in a prepared statement. Kessler noted that because of the lack

of 386 competition, Intel has maintained stable pricing while its manufacturing costs, as is typical for an established semiconductor line, have dropped by about 30%. He estimated that Intel manufactures each chip for \$50 and sells it for more than \$200.

Intel's strong growth "is no longer just the turnaround from the (semiconductor) recession," Kessler said, "Those gains are over. They have people lining up at the door to buy their products."

AMD. The second-quarter news was

AMD. The second-quarter news was not quite so spectacular at AMD, but the Sunnyvale, Calff., chip maker still reported solid profitability on a 23% rise in sales. AMD reported earnings of \$50.1 million, or 29 cents per share, on revenue of \$308.1 million.

Kessler said AMD's profits came not from strong growth but from stemming the red ink ints enasible programmable read-only memory chip business, which returned to the break-even point during the quarter after three years of losses. But AMD's industry-leading percenage of research and development spend-

age of research and development spending during the past three years will begin to pay off in the second half of the year, Kessler predicted.
"They didn't flush all that money down the toilet," he said. "They'll have a lot of

new products out and their margins will expand."

Oracle. The high-flying Belenost, Calif., data base management software vendor reported its first \$100 million ounter and more than doubled its sales

and earnings in both the fourth quarter and the fiscal year ended May 31.

As it did one year earlier, Oracle racked an more than 37% of its annual

As it did one year earlier, Oracle racked up more than 37% of its annual sales in the fourth quarter to reach \$104.2 million in revenue, compared with \$30.4 million in the year-earlier period. Profits kept pace at \$19.1 million, or 20 centa per share, up from \$7.6 million, or 12 cents per share, in the fourth quarter of fiscal 1987.

Annual revenue was \$282.1 million, up from \$131.3 million in fiscal 1987. Exraings for the year were \$42.9 million, or 65 cents per share, compared with \$15.6 million, or 25 cents per share, a year earti-

er.

DCA. A lower tax rate spurred the Alpharetta, Ga-based data communications
supplier to a 48% jump in profits on a
more modest 25% rise in revenue for its
fiscal year ended June 30. DCA earned
342.2 million, or \$2.77 per share, on sales
of \$227.5 million.

DCA noted that its effective tax rate dropped from 39% in facal 1987 to 27%. In addition, in cetted \$1,9 million, or 12 cents per share, from the sale of its stake in Ungermann-Bass, Inc. after Ungermann-Bass rebuffed DCA's takeover attempt in favor of a buy-out by Tandem Computers, Inc.

Computers, inc.
In the fourth quarter, DCA posted a
quarterly record \$63.3 million in revenue, 40% above year-earlier results.
Profits grew 63% to \$11.3 million, or 72

cents per share.

Phoenix Technologies. In its first quarter as a public company, the Norwood, Mans. -based developer of IBM and other compatibility software earned \$2.1 milli-n. or 24 cents per share, on sales 12 million, in the year-earlier period, Phoenix earned \$1.2 million, or 15 cents per share, on revenue of \$5.6 million.

Patent CONTINUED FROM PAGE 54

ON TINUED FROM PAGE 8

What exactly was IBM1 role in inventing IBSCT Many people any that although IBM did get involved in RISC research early on, a great deal of development was done independently at Stanford University and the University of California at Berkeley.

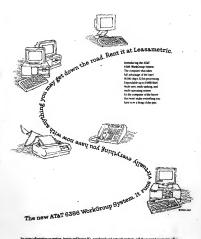
California at Barkeley.

In IBM's case, john Cocke, an IBM is in October 1987 received an award the Association for Computing Mr. ey. This award is their highest hon technical contributions to comp Cocke was cited by them for his so cant contributions to three areas of puter science, one of which was the opment of RISC computers. RISC

and the computers. RISC was stated by Cocke and a small group of aborators in the mid-1970s in IBM's mass J. Watson Research Cester in stown Heights, N. V. me say IBM is going offer its apposition in the RISC market rivers it is becoming a hot gream.

on his composition.

It all gets back to the question of whether or not a patent is being used, and if it is, is that company licensed? We're not targeting a particular type of technology or area of the industry or geographic region or asgment of our patent portfolio. We are



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Shaheen takes Andersen slot

CHICAGO — Arthur Andersen & Co. has appointed a new chief of its \$600 million MIS consulting business in the U.S. George T. Shaheen, former leader of

ndersen's southeast regional consulting nit in Atlanta, was named managing artner of the management information onsulting practice in the U.S. A 21-year

consulting practice in the U.S. A 21-year. Maderness veters, Sababeen has also pre-nied over the firm's MIS consulting in Northern California and the Carolinas. Shaheen, 43, replaces Greeham Bre-sch. Brebach vas reassigned by senior nanagement in May because of suspicion hat be planned to start his own MIS cou-lding firm to compete with Andersen is Are you a

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violation of the Big Eight auditing firm's by-laws (CW, May 30). Brebsch's new duties have not been

Beedsch's new duties have not been determined yet, a spokesman said last week. But many Big Eight followers have said they expect him to leave the firm.

In a related appointment, Stanley L. Cornelison was named managing partner of Andersen's worklwide management in-

of Andersen's worsewide management in-formation consultancy. He succeeds Si-mon Moughamian Jr., who will voluntarily assume other responsibilities Aug. 31. Under Moughamian's direction for the past five years, the worldwide practice grew to aniscal revenue of \$838 million, with 13,000 consultants in 49 countries.

Wilder CONTINUED FROM PAGE 83

ers paid dearly. MSA shares, battered by the company's painful 1987 locates and management shake-up, were hovering around 5° when Computer Associates ferred an \$11.50-per-share bid. Wail Street, as it is soon, west with, pushing the stock past \$1.30 ac expectation that either Computer Associates or someone clese would raise the ante.

But hat Wenhesday, Computer Associates y nuthed its offer off the table, and MSA's stock and offer off the table, and MSA's stock are developed to offer its different parts. ers paid dearly. MSA sha

MSA's stock price dive-bombed so fast it looked like Gordon Gekko himself was dumping his shares. Between the early-

bell, MSA dropped from a high of 12

ints to 9%. You think the MSA stockholders who silently accepted the rejection of the \$11.50-per-chare offer at the previous

day's annual meeting had a regret or two
In public statements, Computer Asan punne statements. Computer As-sociates executives say they would shy away from a hostile takeover, but that is a matter of semantics. Computer Asso-ciates clearly did not shy from an unsolic-ited offer for MSA, and the guess here is that the pursuit would still be on if MSA shareholders expressed any interest at all in the acquisition to MSA management or if MSA management and directors con-trolled less than the 24% of stock holdings than they do.

ings than they do.

Computer Associates would argue that its acquisition of Uccel was a friend deal, and it certainly was to Uccel Chief Executive Officer Greg Liemandt, major ity owner Walter Haefner and major shareholders. As in Burroughs' acquisi-

HE TEST will be this: What price will a company pay, in terms of sacrificing its potential market value, to remain independent?

tion of Sperry, however, moet of Uccel's now-departed top-level managers would tell you otherwise. And many of them tell you otherwise. And many of them got very revet everance pockages, too. What is the lesson to be learned from What is the lesson to be learned from the complete Ausociates are though again — hungry enough to test the waters of a proposed business combination by registered mail enther than at the negotiating proposed business combination by registered mail enther than at the negotiating about 100 miles. MSA is not the only reformer very price. "Any underperforming software company is now ripe to be approached by Computer Ausociates," says Charles Federman of software industry deal-maker feerman of software industry deal-maker

ondview Associates.

And with Charles Wang currently And with Charles Wang currently tooling out at the investor community from the cover of *Review* reagazine. Will server with the cover of *Review* reagazine. Will server will be watching software who the speculated interest. Market players who missed out on the quick backs in the recent MSA parties won't want to be left behind when Warg. Long Island rate of the behind when Warg. Long Island rate of the behind when Warg. Long Island room is its next stop. And the quick-back crowd, as executives across the nation know all too well, doesn't give a hoot short veryoff richeprosedence.

tion know all too wed, doesn't give a hoot show vendor independence.

The conventional window may how be a supplementation of the conventional window may how the conventional window may how the conventional conven

weeks, and the software industry may see some wild times in the next few months because of it.

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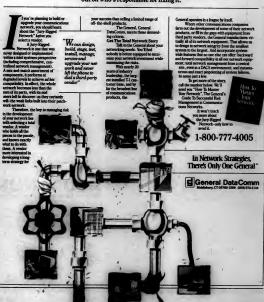
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U.S. tries to gain entry

e supercomputer market else-tere in the world, and more if

merce Department. "But we've had a small share in the private-

sector market in Japan and, until recently, no installations in the

ernment pressure not to buy a NEC com-

In comparison, Cray will have about 12 systems installed

in Japan by the end of this year. The firm has sold its products to almost all of Ja-

pan's auto makers.
Of the 267 super-computers installed

nothing at all.

laban's supercomputer market tough to crack s until July 1. "The U.S. has 80% to 85% of

BY LORI VALIGRA

a led by the U.S. D nt of Commerce left Japan rier this month after its sec-

U.S. trade official John fcPhee led the second mission o Japan. The first visit occurred at October, just after an agree-sent on access to the Japanese sariest was concluded between ed in the procurement ar-

UROPE IS an open market where Cray still dominates. But NEC sold two or three machines there, and that's two or three accounts Cray didn't get."

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worldwide, about 200 are Crays, 20 or 25 are old Control Data Corp. 205s, about 18 or 19 are Japanese supercomputers installed in Japan, and the rest are Japanese computers in Europe and the U.S., some with European brand

worse of them.

Worries linger about unfair practices by Japan against U.S. companies and about Japanese computer makers' growing presence in Europe and their techno-

Criteria may change for licensing exports

BY KAREN GULLO

you count minisupercom-puters," said McPhee, director of the Office of Computers and WASHINGTON, D.C.—A proposal that would widen the criteria used to clinicity supercompositors for export licensing persons in being drawn up by the U.S. Experiment of Consecution of the Consecution of Consecution of the Consecution of the Consecution of Consecution of the Consecu Japanese government."

On the other hand, only one Japanese company, NEC Corp., has a supercomputer installed in the U.S. Last year, MIT buckled

export controls during a recent supercomputer conference.

"The existing criteria don't cover machines without vector capability, such as massively parallel machines, and ignore the wealth of benchmark data on scalar and vector performance."

Benchmarks developed by several national research labora-tories and the National Aeronautics and Space Administration to measure vector performance would serve as the basis for

to measure vector performance would serve as the basis for venalizing superconspute performance. Corrently, a machine is classified as a superconspler in it. and the superconspler in it. and it is superconspler in it. and influence of the superconspler in it. and it is superconspler in it. 240M bytes of memory or vector processing capabilities. A representative from IBM vision closures or very change the criteria, surject that obtaining export incense from the gov-renment is already a sine process that can take months to com-plete. Be and called for criteria that would establish a level playing field between U.S. and gapasees emandacturers.

Gallo is a New York-based free-lance write

NEC sold two or three much there, and that's two or three accounts Cray didn't get," said Norman J. Dawson, vice-presient of international operation i SCS in San Diego and a mem

at SCS in San Diego and a mem-ber of the U.S. mission.

McPhoe said that although
U.S. companies have held the lead in multiprocessing or para-lel supercomputers, Japan holds the lead in single-processor ma-chines. "I expect Japanese man-ufacturers will come out with perallel machines soon, but we have an edge now with applica-tions software," McPhee said.

'And our U.S. parallel mach will be of good use to Japanese companies." But Dawson

Opening doors
The Commerce Department
wants to make use of that time

lag and is pushing Japan to open its public sector, which includes its public sector, which includes the government and some uni-versities. Lauren Kelley, a su-percomputer industry analyst at the Commerce Department, ex-plained that if supercomputers pauned that if supercomputers installed by Japanese supercom-puter makers for their own use are excluded, then more than 50% of the installations in Japan are in the public sector, which

Kelley said Cray sold its first outer in Japan in 1981. 3333 W. MSA offer

tting its act together. Havin it lived through a takeover, ow what it's like to go throug

six months of uncertainty."

American Standard successfully fended off a takeover bid by Black & Decker Corp. earlier

the company's annual mee did not question MSA's rejec or the Computer Associates offer and approved several anti-take-over measures that were on the agenda before the takeover bid was disclosed.

tion that our shareholders value their independence," said Chair-man John P. Imlay Jr. after the ng, which packed ms at the company's head rters. "This clearly demon

quarters. "This clearly demonstrates that our shareholders share a common belief in the bright future of MSA."

At the first half of its annual meeting last month, MSA revaled the takeover bid. But MSA's board added that it had rejected the bid and refused to negotiate with the autor. The meeting was then adjourned un-

Although not a syllable of Computer Associates was spo-ken during the official 20-minute the minds of attendees; who space in hunhed tones about the bid only minutes before the meeting began. "It's nice to see more more than three people attend an annual meeting." Insky joked to the crowd of nearly 200.

There was also a deafening attended to the control of the c

ra," she added.
While the U.S. has been com-sining about unfair practices in pan, Japan has brought up its storic concerns about system apport and timely delivery. Just There was also a dealening since in the room when Imlay before the supercomputer mis-sion arrived in Tokyo, ETA failed to deliver a system on time to its Japanese customers. The med the floor up for other iness. "I knew this meeting business. "I knew usu meeus was going to be either very lon or very short," said one please attendee as he was getting read to leave, "I'm very relieved the

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resources at Prime ster, Inc. following that my's acquisition of Compu-

Computervision brough: Muller to Massichussetts twice for job interviews and a third time, after be accepted the new position, to search for a home. Muller suggests doing things

in the reverse order. "Don't ever bring anyone into a high-in-come market for a house-hant-ing trip after they've accepted the job. Make it a condition that they come out first," be advises, "because it is absolute mad-

uller is now renting a home in indonderry, N.H., more than an hour's commute from his office, and pays two-and-a-half times the monthly payment for his former home in Colorado. Rent for a comparable home closer to work would be even

Computervision hired a relo-cation service to assist Muller in finding a new home, but the ser-vice referred him to realtors who offered little or no help.

According to Muller, "resitors didn't want to deal with us because they knew we were from the Rocky Mountains . . . and wouldn't be happy with what we could afford. One realtor said she was selected to work with us suse she was a junior mem er of the realty organization

To add to his woes, Muller pent five months trying to sell is home in Denver because of he depressed market there. His experience is not unique among those who move from an costs to more expensive loca-tions such as the Northeast or the West Coast, according to Steve Garfinlde, managing di-rector of Richards Consultants

Ltd., a recruiting firm based in Wellesley, Mass.

cation resistance" on the part of Reasons for resistance

est-free loans or loans that may be forgives if the recruit stays with the company for a specified period of time. Companies also ay offer sign-on boouses of as ach as \$100,000 to he used for purchase of a new h

 Loss-on-sale programs that re-imburse the recruit for a loss taken when selling his home in a • Financing a third-party pur-chase of the employee's home:

ecome a microwave design en-neer at General Electric Aeroce in Utica, N.Y. Althou casolis tot consense.

interest in the valuries of MIS directors in different cities do not lect the vast differences in home prices in those areas. the new position required a sala-ry cut, the cost of living in Utica is so much lower that his family is better off financially, he says.

is better off financially, he says. They moved from a two-bed-room house in Nathus to one in Utics with five bedrooms. Marcia Wright, senior direc-tor of data processing at Alamo Rent-a-Car, Inc. in Ft. Lauder-

with a salary increase for about three years to offset increased

Exceeding expectations Just as a surge in housing costs can exceed the greater salary

at comes with a new job, the

le Hutchinson moved from m. N.H., to Utica, N.Y. to

reduced costs accompanying a

dale, Fla., sees resistance in re-cruits from high-priced areas who see the lower salaries elsehere and do not understand sat the cost of living is so much

the improvement in his financial standing came at a price. Leaving friends and relatives strains the family. And, he notes, "It's the family. And, he notes, "It's not as though we're living in Cal-ifornia on the beach, and people are Bocking to visit. We're in up-state New York."

MATTON PROVIDED BY A COMPUTERWORLD OFFIAA HET SALARY SU AND THE KATIONAL ASSOCIATION OF HEAL CY C would-be hires and offers of hef-

assistance puckages by com-nies trying to attract managers. Garfinkle says

ty a carrying charge, usually 1.5% of the purchase price, until

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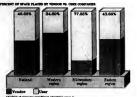
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becoming a little better. Until the 3990 begins to ship, there are very few factors expected to

through the summer months. As with the 3880 market, 3880 val-

ues are expected to begin to re-spond to 3990 shipments in the

Shipment of the new 3990

and improved delivery scheduler for the new 3380s could mean

IBM European market strong

Demand high, supply dry due to users hanging on to drives, controllers

IBM 3380 standard drives are currently trading in Europe at the same levels seen in Decem-ber 1987. Secondary market prices began firming up in Feb-ruary, a process that has contin-

ed to the present time.

The 3380 Model AA4 cur-ently trades at about 22% re-ail, or \$28,620, which is just Prices are currently at 32% retail, or \$30,240,

around 32% retail, or \$30,240, representing a cort per mega-byte of \$11.88. This strength can be ex-plained by the still healthy de-mand for \$3200 standards com-bined with the virtual drying up of supply. The equipment is re-portedly not lerving the European marketplace, and this short-age is mainly the spaul of users hanging on to their drives rather than arowing to the new \$330 the

YOUR BEST **SOURCE FOR** at the current time.

The stability of the 3380 market has been paralleled in the 3880 controller market, although the gradual increase in secondary market values appears to have peaked in May. Jane current fair market value research indicated that the firm-mass in prices since the end ness in prices since the end of February is beginning to ease off a little, with June values showing

Upgrade coming The 3880 Model 1 market is

The 3800 Model a market in a demarketised by severe short-sage, particularly of the lower se-tal number models, as they are in very high demand. The 8170 is to the point price. The high seri-al number models are mostly be-ing segment to 3800 Model 3s. IBM spepars to be having in section of the second of the second to the second price of the second to the second second to the second second to the Financial Services Corp. has re-ports of the 3005 commanding values much greater than this. Generally speaking, the 3880

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	List price*	Percent of retail	Percent of wholesole
3380 Model AA4	\$129,994	22	28
204	\$94,392	32	24
AD4	\$111,280	- 42	- 32
BD4	\$80,816	61	49
AEA	\$150,360	58	47 -
RE4	\$123,258	69	58
3680 Model 1	\$58,936	23	1.8
3	\$58,936	37	31

Drives scheduled to become available by April have remained installed. Consequently, supplies have remained abort and values firm. Downside risk will resp-pear when the 3990 begins to ship in volume in August or September, when it is logical to expect some standards to shake loose as users install 3389 Model to set Mr. with the new correct. early March, the 3380 Model AD4 has consisted its decinable it gradually, since the begin-albeit gradually, since the begin-ning of the year. In early lung, a Model AD4 was trading at around \$44,590, or 42% of its (retail), with broker prices at around \$37,590. Supplies are reasonable and like the stan-dards, the Model AD4 attracts a good level of demand. y March, the 3380 Model

A different story
The 3380 Model BD4 is a different story. This drive has been story. This drive has been picking up consistently since the beginning of this year. Supplies are tight, and once an swalable machine is located, it is quickly naupped up, have fair market vulues are around 456,600 retail, but this is generally perceived as a peak value and regarded an extremely high. Individual B drives are very acces and take time to mand continues to pressure supply. The 3380 Model AA4 price has remained static since early May, and the 3380 Model ward creep.
While 3380 standards and
3380 Model Es have maintained
an upward trend in value since

upward pressure on values. IDC Financial Services has received reports that a number of Mode AD4s and BD4s will become available in August or Septem

vatues on the secondary mar-ket for 3380 Model AE4s and BE4s have shown a spectacular increase since the end of Febru-ary. There are virtually none available on the market and

All values quoted in this ar-ticle have been converted from West German deutsche marks at the July 11 exchange rate of 54

The BoCoEx Index Closing prices report for the use

th ending July 8, 1988

	price	Mak	low
IBM PC Model 076	\$750	\$950	\$600
XT Model 086	\$1,100	\$1,100	\$875
XT Model 089	\$1,350	\$1,850	\$1,150
AT Model 099	\$1,900	\$2,350	\$1,800
AT Model 239	\$2,550	\$2,750	\$2,125
AT Model 339	\$3,150	\$3,450	\$2,900
PS/2 Medel 30	\$1,525	\$1,650	\$800
PS/2 Model 50	\$2,275	\$2,375	\$1,900
Compaq Partolife I	\$750	\$300	\$575
Portable II	\$2,275	\$2,375	\$1,050
Pertable III	\$3,000	\$3,100	\$2,700
Portable 366	\$2,250	\$2,350	\$1,675
Pleat	\$1,025	\$1,100	3000
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Training

Third-party help aids learning

Taking initiative, applying leverage to vendor can boost training efforts

BY SALLY CUSACK

A package of training options re

cently influenced a major acquisi-tion of software by Safeway Stores, Inc., an Oskland, Calif., permarket operator. The buying decision was

iyed by one vendor's offer to wide the initial in-house training as part of a package purchase price, according to Ferne Fediti, manager of on-line systems at Safeway. The MIS department

While Fedili says training should not be the basis for select-ing a major software vendor, she says that it can play a part in the

lection process. This tactic is one of the means by which data processing train-ing departments can try to ex-tract assistance from software Are group rates availab vendors. There are several other tacks to pursue, according to trainers and vendors.

Early talk helps One key to getting vendors to contribute to a quality training program is establishing effective

as early in the buying proces Too often, training is an af-"Too often, training is an at-terthought of purchase," says Sharon Tatai, training specialist at Pacific Gus and Electric Co. in San Francisco. "People suddenly realize the software will be deliv-

ered in a matter of days, and no provisions have been made for training the users."

Total recommends trying to es-tablish a partnership with the vendor — avoiding an "us against them" feeling between d users and vendors. There are several basic or

There are several pass; ques-tions that should be resolved as soon as possible, she says, in-cluding the following:

• What is the training cost per

 Can the training be cur to the client's neede? · Have the courses been tested · What are the instructor's cre-

When dealing with a vendor

hat purpose. Often, however, the custo that will be involved with training, as with third-party trainers, Safeway's Fedili requests an outside of the course in advance and seeks to have the training customized to include terms and ap-

orten, nowever, the custom-er may have to take responsibi-ity for establishing this sort of rapport, particularly if the soft-ware house has only recently in-tiated training services for its For additional fees, ve often offer a spectrum of train-ing, such as classes at the cus-

fore the purchase to ascertain who is using the software and for

OO OFTEN, training is an afterthought of purchase. People suddenly realize . . . no provisions have been made for training the users."

Forn Kruger, marketing man-ger for customer support ser-loss at data base vendor Rela-onal Technology, Inc. in lameda, Calif., says that for a successful software training pro-ram, the vendor should estab-th a clear profile of the custom-

Kruger says this effort should involve establishing contact with the person responsible for train-The vendor representative ould visit the customer site be-

SHARON TATAI PACIFIC GAS AND ELECTRIC CO.

computer-based courses, on-site consulting and a telephone hot 'Train the trainer' One comparatively economical

alternative to the more expen-are approach of on-site classes is to just send a few representa-tives to an off-site seminar, Kru-

gersays.

"These persons will then serve as trainers to the rest of the staff on-site," she says.

"This train-the-trainer' technique works very well with small to mid-site companies."

Rick Angelin, comparer excites with the U.S. Army qhalled Rick American and the Companies of the Companies entation as a supplement

mentation as a supplement to training programs.

Angelini has found that ven-dor documentation can ease the training loud. "Where we used to call the consignity, now rise times out of 10, we just consult the manual." he sups. Supplemental literature such as updates that are provided free technical referra-tions to the sups. The program of program of

to critique courses they atte ed, usually with a written eval

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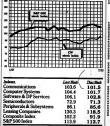
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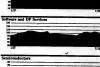
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STOCK RADING INDEX













Computerworld Stock Trading Summary







19:44









azy days

The market takes a catnap in the summertime haze

Processors FROM PAGE 1

n demonstrations of the sys.

"In terms of text-search ca-lities, this potentially puts t-years between Dow Jones and anything else I've seen."
McCduville says. "Others, such as Resters and Nexis, will have to start thinking about this technology. But Dow Jones has got the financial community sewn

Dunn and Charles Brady, di rector of systems development at Dow Jones, had on interest in being pioneers, but they didn't ueing pioneers, but they didn't shy away either.

The News/Retrieval Service, The News/Retneval Service, which provides access to more than 40 data bases, including fi-nancial data, news wire informa-tion and corporate profiles for its worldwide retail and wholesale scription service, was hitting chnological wall.

a tochnological wall.

Dow Jones dominates the fimancial on-line data base market;
its estimated 290,000 subscribers are twice the number of its
nearest competitor, Reuters, according to the Information In-

"We had a cartch-22"
The information Services Group
was growing faster than any other part of Dow Jones, a \$1.4 bilion information services giant. But the current system — IBM 3090s and 4300s and Digital Equipment Corp. VAXs in't keep up with the de-

mand, "We had a catch-22,"
Dunn says. "The bigger we got
and the more precise an individunal wanted to be in his search
(through the News/Retrieval
data bases), the more complicated the search mechanism had to be. We looked up and down for a

was none. Complicating matters was the need to use tough-to-remember prompt codes — Boolean, acng to Dunn — to be able to use the services. For example, a user on the news service must remember to type //CQE to get on-line stock quotes. This forced many users to become techni-

Eighteen months ago, Dunn Eighteen months ago, Dunn noticed a small article in Busi-ness Wesh that mentioned Thinking Machines and its futur-sitic device. Fascinated, Dunn arranged a visit to Cambridge for a demonstration. He couldn't decipher the technical descriptions. "It was a 12-sided hypercube - I thought that was something you put in a drink, Looking to the Connection

Machine seemed like risky busi-ness. Dunn and Brady first need-ed to feel assured that start-up Thinking Machines would sur-Thinking Machines would sur-vive as a vendor. After meeting with company President Sheryl Handler and some of its principal technical people, Dunn and Bra-dy felt that the young company was on a solid footing.

But what about the machine itself? The 4-year-old technology relies on a radical rethinking of traditional computing. Rather than one or a handful of processors running at high speed, the Connection Machine relies on 65,000 small processors work-ing in concert to share a specific task. But among its applications ray-tracing, wind-tunnel sim-ulation, hydrodynamic modeling
 the computer did a bang-up job with data retrieval. For

Dow Jones' Brady and Dunn with

Dunn, that rang a bell.

Massively parallel, the Connection Machine whisks through data bases doing data retrieval at breakneck speed even though its 65,000 processors are actually Programs for the Connection were operating on one data ob-

ject rather than thousands. Ac-cording to Ted Tabloski, direcor system software topment at Thinking Ma-s, "This is a much more a way than sequential pro-ng to approach problems redata-intensive."

Integrated into the Dow Jones News/Retrieval Service, such a machine could revolution-

ized. Unlike search which electronic services, services, which scour data bases for key words and turn out only data with references to those references to those words, the Connection Machine can blanket a data base

and do concurrent pattern matching. The result is that the Connection Machine is capable of doing ticated refe sed on a virtual natural language in-terface. It will turn service will rema will have a choice.

with up related material that a conventional search tool would never find.

Dunn and Brady didn't hesetate; they set the wheels in motate; they set the wheels in mo-tion to purchase the computer. With revenue growing at more than 25% amountly and pretax margian of 40%, the Information Services Group is the Instest growing division of Dow Jones. growing division of Dow Jones, displacing the company's hugely successful newspaper, The Wall Street Journal, as its top grow-er. The company purchased 56% of Telerate, a global electronic-

of Telerate, a global electronic network financial data provider and that, coupled with Duan's own division, now represents 30% of the company, and 50% of the operating income. The time to press the pedal to the metal, Duan figured, was now.

Bury the competition Duan and Brady and the rest of the Information Services Group want to continue the high growth and put even more dis-tance between themselves and competitors such as Reuters, Compuserve, Inc., Nexis and other on-line electronic informa-tion providers. Until the new tion providers. Until the new system goes on-line, they won't he able to determine whether they've hit pay dirt or installed a white elephant. As Duan points out, there is on way to do market research on this type of offering e. McConville won't venture an

estimate on bottom-line returns, but he is convinced that the mar-gins from this service will exceed the 40% that the Information Services Group is currently real-using. With that kind of potential, it didn't require much fast-talking to get management to sign off on the Connection Machine. isoked to technology to solve problems," Brady says. For example, in order to turn The Wall Street Journal into the largest circulation newspaper in the U.S., technological advances were a must. Dow Jones was the first nongovernmental commercial user of settlelle to technology.

Brady points out that the strength of the system is to pro-

strength of the system is to pro-duce the real answer they are seeking through the relevance feedback of the Councetion Ma-chine. "A trained librarian can find besic things faster on the current system," Brady says. "But on things that are difficult to find, the new system will win The new system will likely in

corporate a new payment mech-anism as well intended as a place for someone to "browse" for information, the service will switch to a per-item charge.

McConville says he believes
that Dow Jones should and will charge a premium for the ser-vice. Brady points out that when the Connection Machine goes on-line later this year, the old

The big picture In addition, Dunn and Brady plan

to create a data base of great breadth rather than depth. They say that most users want current information rather than five years of The Wall Street Jouryears of The Wall Street Jour-nal. The new system will incor-porate aix months worth of hun-dreds of publications such as the Journal, Fortune, Business Week, USA Teday and dozens of regional newspapers and resources.

resources. Beyond the cost of the com-puters, Brady calculates that the total investment in the Connec-tion Machine is already \$8 mis-lion, and if all goes according to plan, Dow Jones will purchase many more. Because Dow Jones is using the Connection Machine in its first business application, Down realises the impact the ac-Duan realizes the impact the ac-count has. He estimates the \$5.3

e last year. "With Thinking Mach we were the great white hope," Duan says. "They were tired of blasting missiles out of the air or splicing messes out to the splicing genes in a moune gonad. Here was something that could around benefit munkind."

For Dunn, the excitement of the technology pales quickly within the corporate world. Though management was ac-cepting of his risky venture, Dans knows that the project must make good business sense. Until the system goes on-fine, many of the business questions cannot be answered. But Dunn is hardly castions in his prognosis. "If it does what we think it will do and the unage is what we think it's going to be, we can't buy enough Connection Markhase" he may be a supported to the control of the control on knows that the project

In plain English, please

ow Jones News/Retrieval Service dominates the financial on-line data base market with twice the subscrib-ers of its nearest competitor. But sub-scribers have long been frustrated

when have long been furnished the complexities of using the service, a cutration acknowledged by Dow Jones Executive Vice-President Bill Dans.

"We have this funtastic service," Dans year worked business annalgam of 70 billion characters of information on computers in order tworks, on packet works, or packet works, and then I'll see "Caro documents," but I say the machine's game. It type in hen I play the machine's game. I type in oning'... I get 8,763 documents. I try being and Airbus... 392 documents. And the eter is ticking at \$2.40 per minute, and somemeter is ticking at \$2.40 per minute, and some newasts the answer and you're on the phone and sweating a bit. Then I say, 'The beck with it, it's not worth it.'' Dum is outspoken in his distribution of the computers. I shall be a supported to it in turning to the Computers. I be turning to the Computers.

seed to prompt today's computers. In turning to the Connection Machine, Dow-nes hopes to eliminate these barriers. The hinking Machines Corp. software developers ested an algorithm using LISP, the artificial religence language, to allow communds to be tared into the Connection Machine in plain agish. That algorithm, written for a Symbo-sia. In All worksprise, non-tellage to be not nc. Al workstation, needed to be ported to the C language so that Dow Jones could use its Digital Equipment Corp. VAXs running Ultrix as a commercial front end. Dow Jones and Thinking Machines are currently working together to create the software necessary to run

getter to create the software necessary to run all of the system's programs. Dunn can already demonstrate the user in-terface on an Apple Computer, Inc. Macinton H in his office. With the Connection Machine, a subscriber will be able to dial into the Dow Jones makercher will be able to distinct he Due Joses service, yop in a specific on the Kr Or Macineric, yop in a specific on the Kr Or Macineric, you have a specific or the Archael and recognitive situation between Bosespa and Archae. And recorner a list of story references from the memore dail kines. The server can be most a spelicable, the Connection Machine will collate and match every similar used in all the state of the server of the server and the state of the server and the serve

in awe of his new technology.
"The Connection Machine is really an idiot." Dunn says. "It runs like a son of a bitch, but it drools at the end of a 100-yard dash. You ha to have another mechanism that wipes its mouth, pulls its pants up and takes it over to get the blue ribbon."

GLENN RIPKIN

CASE FROM PAGE 1

meration languages in favor of obol on the production end because those languages lack the performance needed for transac-

performance needed for transac-tion processing, he added.
"This is probably the first ma-jor coprocessing application in the computer industry and defi-nitely is the first of its type in the financial world." Bedell said. Three disparate architectures, sone of which individually represents a revolutionary developnt, act as one, he said.

"It is integrating all of these non-breakthrough technologies that is a breakthrough," Bedell said. He added that the trading system would have been imp without the use of the CASE tool, known as High Pro-

ctivity Systems. The PCs, equipped with Mi-rosoft Corp.'s Windows, handle the user interface and tasks such as data validation. More than 90% of the transaction processing is done on the Stratus systems, while mainframes running IBM MVS and DB2 handle reporting and act as the corporate

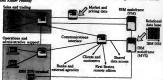
The bulk of First Boston's busi-ness processing is handled by the iding system, and even appli-tions such as Fortran-based fi-

Moynihan

FROM PAGE 1

fect on the industry than he excted when be slipped the proof 1986. At the time of enact-ment, congressional staffers es-timated that Section 1706 would raise roughly \$12 million per year in tax revenue, but a more

recent estimate puts the figure at \$100 million per year. Joseph E. Collins, director of public affairs for the Data Pro-cessing Management Associassing Management Associa-on in Park Ridge, Ill., praised bill for providing a clear-cut limition of independent techni-contractors that will reduce certainty in the industry, "It's



er IBM VM can be called up er Windows, with informaon being transferred to the trading system through a cut-



cable to the data proces

that he is not an employee of the broker; that the contractor re-serves the right to perform tech-

nical services for more than one broker and more than one client; and that the broker does not in-

test for technical service workers, including computer programmers and systems ana-lysts, has two major require-ments for obtaining independent

industry than the co test was," Collins said. Moynihan's new

contractor status: irst, the contractor must we a written contract stating and-paste capability.
The development project was kept out of the public eye through First Boston's refassition to grant in-depth media interview and was at least purtially shielded from some of the organization's vendors, Bodel said, but the project under wraps until it was confident the system worked as released.

cense it.

First Boston will license the trading package — stripped of some proprietary techniques — and the CASE system to Kidder Peabody for an undisclosed fee. As part of the agreement, Kidder Peabody will add a retail trading planned.

Kidder Peabody became involved less than a year ago when
officials "heard through the
grapevine" that First Boston
was looking for a licensee for its new system, according to a Kid-der Peabody representative.

or a client must not exceed 18 fronths. During gaps in the work, the broker may not pro-ride compensation such as vaca-1706 and oppose attempts to weaken it. ADAPSO officials de-

This test is expected to be easier for contractors to meet but a third provision of the compromise bill imposes a 10% tax-withholding requirement on inendent contractors in order

The Moynthan bill, designated S.2626, was referred to the Senate Pinance Committee and could be included in a technical strongly opposed Section 1706, said they will d they will support Moyai-n's bill. But sources predicted

Standards top CASE summit

BY NELL MARGOLIS

CAMBRIDGE, Mana. — Leot week's CASE '88 colloquium boasted a full panoply of the predictable technology sensions and tool displays and one entirely anovel item: the first Standered Coordination Meeting in the brief but controversial history of

SSE.!
With the plethora of suggest
istandards threatening to be
one as unwieldy as the number
computer-sided software en
neering (CASE) products tha gineering (CASE) products that made standardistion a burning insue, representatives of nine leading standards proponents met for a day. Their purpose: to summarize their efforts to date and lay a foundation for stan-dardisation of the standards. While statements such as. We have to have standards— and soon — for strategic, fiscal

searching for a trading system. Bedell said First Boston is evalu-

ating whether to offer the trading system to other customers and has installed the CASE tool at several companies that may li-

cation to the trading and rance system for both orga-

ed to comment until a

and soon — for strate and technological and technological reasons drew general agreement, sent ment varied widely as to what a pects of the overall CASE en-roament should be standardize which should come first as whether the effort should be us der the aegis of an objective

clined to comment unus memour firms are policed. Joed Brust, chairman of ADAPS'O's federal tax overview committee and founder of Amete Systems Corp, in 10s Angeles, criticized the bill as full of 'tre-mendous loopholes. These tests are no test at all. Any employer could pass them and become an indemendent contractor tomor-indemendent contractor tomorcived not as a work sea from which a concrete plan would emerge but as a foray into communication where little to none has thus for existed — was

"Two never teen anythe like this meeting," said De Sharon, editor of the newslet "CASE Outlook." Both a gre-way and and any and any and any

could be included in a technical recovery of the countries we can live with," and Jack Christman, seasonic effective of the technical seasonic seasonic effective of the tests Association in St. Louis, attempt for the Nicholan Association of Company of the Nicholan Association of Company of the Nicholan Association of Nicholan Christman, and the Nicholan Christman, and the Nicholan Christman, and the Nicholan Christman of the Nicholan Christman (Nicholan Christman State Valley Season of the Nicholan Christman (Nicholan Christman Ch is kind of thing." In fact, in add commercialization and u CASE technology, one co sus that emerged was that or morting was not enough. Pla-for a second, perhaps week-to standards summit are alread

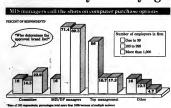
demnify the contractor from the second, the duration of the work in Discounce and the first week in passary or a Mann. (1700) 4971. Copyright 1980 by CW Publishingline. All rights res Computerwork can be purchased on 35 nm microfile Ann Actors, Mich. 46100. Computerwork is indeed

r. U.S. — \$44 s year; Canada, Coptrol & Sc. America — \$110 s year; Europe — \$165 s year; al-fairmal service). Four weeks sector is required for change of address. After all weeks for ever ABP

o Course, P.O. Box

TRENDS

Information systems buying



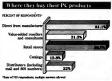
with those

000 workers. In a look at who makes deci-tions on information processing oves and the results of those crisitions, The Wall Street Jour-al found that approved brand to are most likely to be com-led by MIS managers in omi-ele firms (100 to 999 workers) of these comments.

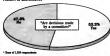
naller companies.

Table individuals still set fuct standards in most com-es, actual acquisition deci-s are more likely to be made

IAMES CONNOLLY







Committee's main function is to OK buys



LINES

neducting tool might be more helpful , which said it will add new models to its VS I suppoters, announcing the VS 5000 section No. 100 product line. Fred might want to cahedla New York, as most excises will be for swy from

would provide at AT&T's Ac



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